The Effect of Paid Parental Leave on Breastfeeding, Parental Health and Behavior

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25 August 2019

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Little is known about the effects of paid parental leave (in particular fathers' quotas) on parental health and involvement. In this paper, we exploit a reform that took place in the Canadian province of Quebec to address that important topic. In 2006, Quebec opted out of the federal plan and established its own parental insurance plan, named the Quebec Parental Insurance Plan (QPIP). This program has lowered the eligibility criteria, increased income replacement and introduced fathers' quotas. Using three data sets, we investigate the impact of the QPIP on breastfeeding and parental health and behavior. Our results show that the reform increased breastfeeding duration and parental involvement. Results also suggest that the policy had limited positive effects on parental health.

Keys words : parental leave ; family health, breastfeeding ; parental behavior.

JEL Classification : I12 ; I18 ; J18 ; I30

*We wish to thank Professors Steven Ambler, Jean-Marie Dufour, Catherine Haeck, Pierre Lefebvre, Philip Merrigan and Victoria Zinde-Walsh. The analysis is based on Statistics Canada's restricted-access Micro Data Files, available in Canadian Research Data Centres. All computations on these microdata were prepared by the authors, who assume the responsibility for the use and interpretation of these data. Corresponding author : Laetitia Lebihan.

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1 Introduction

The availability and length of paid parental leave has increased substantially in most OECD countries over the last decades. From 1970 to 2016, the average number of weeks of paid leave available to mothers rose from 17 to 52.5 across OECD countries (OECD, 2017). Nevertheless, there is considerable variation within these countries. Indeed, some, such as Finland and the Slovak Republic, offer over three years of paid leave, whereas others, such as the United States, do not offer any paid federal leave.[1] The objectives of parental leave policies are multiple and include protecting and encouraging workforce participation, providing financial security, promoting gender equity and improving the health and well-being of young children and their parents by allowing them to bond during the first year of the child's life (Robson, 2017).

An extensive literature has examined short-term and long-term effects of these policies on maternal employment and earnings (Han et al., 2009; Lalive et al., 2013; Bartel et al., 2018) and child outcomes such as health and cognitive development (Ruhm, 2000; Tanaka, 2005; Baker & Milligan, 2008, 2015; Rossin, 2011; Dahl et al., 2016). Little is known, however, about the effects of parental leave policies on parental health. There is a well-established literature in psychology and public health on the association between maternity leave duration and maternal health, but these studies are essentially correlational and use very small samples (see Aitken et al., 2015; Avendano et al., 2015, for a review). In the economics literature, studies on the effect of parental leave policies on parental health are rarer and have yielded mixed results. For example, Chatterji & Markowitz (2005, 2012) found that longer maternity leave (paid or unpaid) in the United States is significantly associated with decreased depressive symptoms and improvement in health. Similarly, Bullinger (2019) examined the impact of California's paid family leave program and showed that the reform has improved the mental health status of the mother but not that of the father. She also reported an increase in parental care and engagement. However, Baker & Milligan (2008) exploited a 25-week increase in paid parental leave in Canada in 2001 and found that the reform had no impact on health, depression or post-partum difficulties experienced by mothers. With regard to an increase in the number of weeks of parental leave with full benefit compensation in Denmark, Beuchert et al. (2016) found a decrease in inpatient and outpatient hospital admissions among mothers, but several indicators of health and well-being of families (e.g., antidepressant medication use) have been unaffected. Finally, Bütikofer et al. (2018) showed that the introduction of paid maternity leave in Norway improved a range of maternal health outcomes and reported diminishing

1. There is no federal paid parental leave in United States. The Family and Medical Leave Act of 1993 (FMLA) guarantees 12 weeks of unpaid leave for eligible mothers. Currently, six states and the District of Columbia offer paid family leave.

returns to leave length.

In this study, we investigate the impact of a parental leave reform in the Canadian province of Quebec on parental health, breastfeeding and parental involvement. More precisely, we study the Quebec Parental Insurance Plan (QPIP), introduced in Quebec on January 1, 2006. From 2001 to 2005, eligible parents in all Canadian provinces could claim parental leave benefits from the Employment Insurance (EI) program (Federal plan). In 2006, Quebec opted out the EI program and established its own parental insurance plan named the Régime Québécois d'Assurance Parentale (RQAP), or QPIP. Quebec is the only province in Canada with its own parental leave. The QPIP has lowered the eligibility criteria for leave, increased income replacement and introduced fathers' quotas. Existing evidence shows that the reform increased fathers' claim rates by 53 percentage points and fathers' leave duration by 3 weeks. It also improved mothers' participation and reduced sex specialization in the long term (Patnaik, 2019). Haeck et al. (2019) showed that mothers returned to work later, and both mothers and fathers received higher benefits following the reform. They also reported some limited positive effects on child outcomes (health, behavior and cognitive development).

In this paper, we focus on breastfeeding and parental health and behavior. It is not clear, a priori, whether the QPIP will improve the parental outcomes. On one hand, the QPIP could have a beneficial effect on the health of mothers because this program reaches a larger proportion of mothers and has raised parents' disposable income during parental leave (Haeck et al., 2019). Furthermore, if a mother has breastfeeding difficulties, post-childbirth complications or severe fatigue and exhaustion, the father's presence at home (because of fathers' quotas) could allow the mother to rest (Persson & Rossin-Slater, 2019). Fathers may also reduce maternal stress and loneliness related to post-partum depression and anxiety (Cairney et al., 2003; Corwin et al., 2005).[2] On the other hand, the EI system was already very generous and provided a total of 50 weeks of paid leave with a 55 percent wage replacement to eligible parents. Evidence shows that expansions in paid parental leave improve maternal health up to a certain point, after which they have little to no further effect, consistent with the assumption of diminishing returns to parental leave length (Bütikofer et al., 2018).

This study contributes to the literature on paid parental leave in several ways. First, to the best of our knowledge, this is the first study to provide an empirical analysis of the impact of the QPIP on parental health (physical and mental, as well as post-partum problems). Previous studies on this program have focused on leave utilization, sex specialization, finan-

2. Evidence shows that the arrival of a new child increases time stress (especially among mothers) and post-partum problems (Avendano et al., 2015; Bullinger, 2019). Full recovery from childbirth can also take more than six months (Bütikofer et al., 2018).

cial family resources and child development (Haeck et al., 2019; Patnaik, 2019). As suggested by Haeck et al. (2019), an analysis of the impact of QPIP on parental health and well-being is necessary and of great interest to policymakers. Second, in addition to studying parental health, we also analyze breastfeeding and parental behavior and thereby examine several mechanisms through which parental leave could affect children's outcomes, such as (1) parental engagement, (2) parenting skills, (3) parental mental and physical health and (4) breastfeeding (Bullinger, 2019). We thus establish an overall picture of the reform's effects on family outcomes. Third, this study is one of the first to investigate the effect on family well-being of a parental leave reform that changed the financial compensation provided during leave and added paternal quotas but did not extend the duration of parental leave (Haeck et al., 2019). We also contribute to a small but growing body of literature that seeks to investigate the effects of fathers' quotas and parental leave on parental health and parental involvement, a field of research that is underdeveloped in the existing literature on paid parental leave (Bullinger, 2019). Fourth, we use several data sets to estimate the causal effect of parental leave on multiple outcomes. Last, we analyze the effects of paid parental leave to determine whether there are differences among vulnerable parents, such as low-educated mothers or mothers who experienced complications at delivery.

In this paper, we use three Statistics Canada data sets : (1) the National Longitudinal Survey of Children and Youth (NLSCY), (2) the Survey of Young Canadians (SYC) and (3) the Canadian Community Health Survey (CCHS). To identify the impact of the QPIP, we use a difference-in-differences (DD) model. The treated group includes parents in Quebec, and the control group includes parents in the rest of Canada.

We find that the QPIP increased breastfeeding duration and parental engagement : Mothers spend more time and do more activities with their children. Our estimates also suggest that the reform had limited positive effects on parental health. The results are robust to a series of robustness checks.

The remainder of this study is structured as follows. Section 2 describes the QPIP reform. Sections 3 and 4 present, respectively, the data sets and the empirical strategy. In section 5, we present our empirical results, and section 6 concludes the paper.

2 Quebec Parental Insurance Plan

The objectives of the QPIP are multiple : to financially support new parents, to encourage individuals to have children and to support parents in devoting more time to their children in the first months of their children's lives (QPIP, 2009). Negotiations on the implementation of a specific plan in Quebec had been under way for more than a decade, well before the

Canadian federal plan was extended in 2001.[3] On March 1, 2005, Quebec and the federal government of Canada signed an agreement allowing Quebec to implement its own insurance plan, and on June 16, 2005, the plan was adopted by the Quebec government. Finally, the QPIP went into effect on January 1, 2006. Before January 1, 2006, eligible parents in Quebec could claim benefits through the EI federal program while on parental leave. The EI program offers maternity benefits (exclusive to the mother) and parental benefits (which can be taken by either parent or shared between parents). The EI program continues to cover all Canadian provinces with the exception of Quebec.

Table 1 presents the details of the EI and QPIP programs. QPIP differs from the EI program in several ways (Dunatchik et al., 2019). First, QPIP is more flexible and offers parents a choice between two options : a basic plan or a special plan. These plans differ in terms of the duration of leave and the percentage of income replaced : Parents can receive lower benefits for a longer period or higher benefits for a shorter period. For its part, the EI federal program offers 15 weeks of maternity leave and 35 weeks of parental leave. Second, the eligibility criteria have been relaxed with the QPIP, increasing access for more families. In contrast to the EI program, which requires 600 hours of insurable employment, QPIP requires only an insurable income of $CA2,000 (no matter how many hours are worked). In addition, self-employed individuals are now eligible for QPIP.[4] Third, QPIP is more generous, with a higher replacement rate (55% for EI program versus 70-75% for QPIP). Maximum insurable income has also increased (from $CA39,000 to $CA57,000 in 2006). Finally, QPIP introduced a "daddy quota," wherein 5 weeks of leave (3 weeks if the special plan is chosen) are reserved for the father and are not transferable to the mother. With the EI program, fathers have no paternity leave and can claim benefits only with parental leave.

Overall, the EI program offers 50 weeks of leave to mothers at 55% pay, of which 35 weeks can be shared with the father. The QPIP basic plan offers 50 potential weeks of leave for mothers (at between 70 and 55% of pay and of which 32 weeks can be shared with the father) as well as 5 weeks of leave exclusively for fathers (paid at 70%). The QPIP special plan offers 40 weeks of leave for mothers (paid at 75% and of which 25 weeks can be shared with the father) as well as 3 weeks of leave exclusively for fathers (paid at 75%).

The QPIP administrative data set shows that over 76% of families with the QPIP choose

3. For children born before December 31, 2000, the EI program offered 25 weeks of leave to mothers at 55% of pay, of which 10 weeks can be shared with father. For children born on December 31, 2000 or later, 25 weeks were added to parental leave, yielding a total potential of 50 weeks for new mothers.

4. Since 2011, self-employed parents have been able to opt into the EI system for maternity and parental benefits on a voluntary basis by contributing to EI. However, take-up rates of maternity and parental leave benefits among self-employed parents remain very low : about 730 self-employed persons in fiscal year 2014-15, or 0.1 percent of all special benefit claims (ESDC, 2016). For QPIP, participation is mandatory. About 6% of mothers were self-employed in NLSCY data (Haeck et al., 2019).

the basic plan (QPIP, 2009). Haeck et al. (2019) reported that total compensation under the QPIP is approximately the same whether the mother takes the basic or the special plan. Using Employment Insurance Coverage Survey (EICS) data, Patnaik (2019) showed that QPIP increased fathers' claim rates by 53 percentage points and fathers' leave duration by 3 weeks. The program also increased mothers' participation, but more moderately (18.7 percentage points).

Overall, QPIP has allowed a greater number of families to be eligible for paid leave and has increased the disposable income of families during leave ; QPIP also introduced father quotas (Haeck et al., 2019).

3 Data

To estimate the effects of the QPIP on families, we use three data sets : (1) the NLSCY, (2) the SYC and (3) the CCHS. These data are administered by Statistics Canada and are confidential. We present below each of the three data sources.

3.1 NLSCY and SYC data

The NLSCY is a biennial survey designed to measure the well-being of young Canadians and their families. [5] This survey started in 1994-95 (Cycle 1) and ended in 2008-09 (Cycle 8). A cohort of about 2,000 children aged 0-11 years was selected in the first cycle and followed longitudinally through the entire survey. At each cycle, new cohorts of 0–1-year-olds were added and followed until ages 4–5. We also add the SYC, a cross-sectional survey conducted in 2010-11. The SYC covers families with children aged 1–9 and has family outcomes content similar to that captured by the NLSCY. We pool the data from the NLSCY and SYC (here labeled as cycle 9) to attain a longer view of the effects of the QPIP. [6] We use the NLSCY/SYC data to analyze the effects of QPIP on breastfeeding, parental health and parenting practices. To our best knowledge, NLSCY and SYC have the only nationally representative data on Canadian children from birth to adulthood (Lebihan & Mao Takongmo, 2018). They therefore have the advantage of containing a large amount of information, especially on birth variables (e.g., premature birth, prenatal care), the behavior of parents with

5. The target population includes Canada's ten provinces and excludes residents of institutions, full-time members of the Canadian Armed Forces and those living on Aboriginal reserves. These exclusions represent about 2 percent of the population in Canada.

6. Haeck et al. (2019) also combined the NLSCY and SYC data to study the effects of QPIP on child development and health. See also Baker et al. (2019) and Lebihan & Mao Takongmo (2018), who studied the impact of other family policies on Canadian families using these two data sets.

their children (e.g., positive interactions, parental involvement, activities with the child) and post-partum health (post-partum depression and post-partum problems).

Similarly to Patnaik (2019), we restrict our sample to two-parent families with children born in 2002 or later. The first restriction is due to several provincial and federal reforms introduced over the period of analysis that targeted single parents in particular (e.g., the enhancement of the National Child Benefit). In addition, single parents face different financial and time resource constraints compared to two-parent families and might respond to changes in QPIP differently than their two-parent counterparts (Lebihan & Mao Takongmo, 2019). We also note that one of the mechanisms by which QPIP can affect family outcomes is the presence of father quotas. For example, having a partner available at home could have a beneficial impact on mothers' health by allowing them to rest and reducing maternal loneliness and stress (Persson & Rossin-Slater, 2019). Due to low rates of single parenthood in Canada, existing studies on federal parental leave reforms and QPIP have also excluded single parents (Baker & Milligan, 2008, 2015; Patnaik, 2019; Dunatchik et al., 2019).

The second restriction is used because Quebec implemented a universal childcare policy in 1997 ; the policy was extended to children aged 0 to 1 in 2000. This reform had a significant impact on childcare use, maternal labor supply and family well-being (Baker et al., 2008; Haeck et al., 2018). Moreover, there were federal reforms about parental leave for mothers giving birth in late 2000 (Baker & Milligan, 2008).

Following Baker & Milligan (2008, 2010), we exclude observations in which the survey respondent is not the biological mother. [7] In NLSCY/SYC data, questions about breastfeeding, post-partum health and other variables related to childbirth are asked only to biological mothers. Similarly, in CCHS data (described in the next section), questions about breastfeeding focus only on women who have given birth within 5 years of the survey date. Fathers may have poor knowledge of breastfeeding practices or mother-child relationships (Baker & Milligan, 2008).

We analyze three set of variables for NLSCY/SYC data. The first set is breastfeeding outcomes. We use information on the incidence and duration of breastfeeding (in months) and the proportion of mothers who breastfed their child for at least 3, 6, 9 and 12 months. [8] We also use a dummy variable set to 1 if breastfeeding was halted because of work and 0 otherwise. The second set of variables consists of measures of parental health. We use the following three measures : (1) the mother is in excellent/very good health in general [9] ; (2)

7. In the NLSCY/SYC, more than 90% of survey respondents are the biological mother of the child.

8. Evidence shows the importance of threshold effects for breastfeeding. For example, the effects on children's health could be significantly different depending on whether they were breastfed exclusively for 4-5 months or for 6 months (Chantry et al., 2006; Baker & Milligan, 2008).

9. The overall health variable includes 5 categories : excellent, very good, good, fair and poor. We follow

the father is in excellent/very good health in general ; and (3) the mother's depression score (ranging from 0 to 36). NLSCY/SYC data also contain information on post-partum health, such as (1) the presence of post-partum depression and (2) the presence of post-partum problems. [10]

The last set of variables describes parenting practices. We use the following measures : (1) the family dysfunction index (score ranging from 0 to 36) ; (2) the ineffective parenting score (ranging from 0 to 8) ; and (3) the positive interaction score (ranging from 0 to 20). The NLSCY/SYC data also have the advantage of including information on the nature and quantity of time mothers spend with their children. [11] Using the same indicators used by Kottelenberg & Lehrer (2018), Baker & Milligan (2010) and Sayour (2019), we create discrete indicators that measure whether the respondent (1) focuses attention on the child for 5 minutes or more, (2) does something special with the child, (3) laughs with the child, (4) plays games with the child and (5) praises this child, according a specific threshold (e.g., daily). We also use measures on the frequency of indicated interactions on a 5-point scale ranging from 1, indicating rarely or never, to 5, indicating daily : (1) sing a song with the child, (2) teach the child new words and (3) go on outings with the child. Appendix Table A1 reports the details for each measure. [12] In Appendix Table A2, we present summary statistics for outcome variables in Quebec and the rest of Canada before and after the QPIP was enacted. We also compute the pre-post differences for each group and, finally, test the null hypothesis of no difference between the treatment and control groups (p-values of the chi-square test of the difference). Generally, there are significant differences in breastfeeding and parental involvement, but not in health measures.

In terms of control variables, we use the sex of the child, the mother's and father's highest level of education (less than a high school diploma, high school diploma, some post-secondary education, post-secondary diploma), the age group of the mother and father (20-24, 25-29, 30-34, 35 years or more), a dummy for whether the mother or father is an immigrant, the size of the area of residence (five groups ranging from rural population to 500,000 residents or more), the presence of older children (no older child, one older child, two or more older children), the presence of younger children (no younger child, one younger child, two or more younger children), dummies for child age in months and the provincial annual unemployment

the literature and create a dichotomous variable in this way because very few cases are in poor health (Currie & Stabile, 2003; Milligan & Stabile, 2009; Bullinger, 2019).

10. Post-partum problems include post-partum depression, post-partum infection, post-partum hypertension or post-partum hospitalization.

11. In NLSCY/SYC data, we have no information on the time investment of the father (Haeck et al., 2019).

12. These parental scales have been shown to have high levels of internal consistency (Jenkins et al., 2003; Statistics Canada, 2005).

rate. Following Haeck et al. (2019), we also report specifications that add dummy variables for infant health characteristics : premature ; normal birth weight ($\geq$2500 grams) ; mother had high blood pressure during the pregnancy ; gestational diabetes ; vaginal delivery ; mother received prenatal care ; child's health at birth is good/fair/poor ; and child has received special medical care after birth. Summary statistics for control variables are presented in Table A3 of the Appendix.

3.2 CCHS data

We also use data from the CCHS, a cross-sectional survey on the health of the Canadian population aged 12 or older (Statistics Canada, 2014). The survey was conducted biennially from 2001 to 2005 ; since 2007, interviews have been conducted annually. In this study, we use surveys from 2003 to 2014. [13] [14] The CCHS has the advantage of having detailed information on breastfeeding (especially exclusive breastfeeding) [15] and on many indices of physical and mental health (e.g., stress, life satisfaction). Because the number of post-reform years is greater with CCHS data and the survey covers all Canadians aged 12 and over, we have more flexibility in our estimates and robustness checks. [16] As previously reported, we restrict our sample to two-parent families whose child was born in 2002 or later.

For CCHS data, we study two sets of variables. The first set comprises breastfeeding outcomes. We use information on the incidence and duration of breastfeeding (in months) and the proportion of mothers who breastfed their child for at least 3, 6, 9 and 12 months. We also use indicators for exclusive breastfeeding : duration of exclusive breastfeeding (in months) and the proportion of mothers who exclusively breastfed their child for at least 3 and 6 months.

The second set of variables consists of the following measures of maternal health : (1) excellent/very good health in general ; (2) excellent/very good mental health ; (3) self-perceived health compared to one year ago (ranging from 1 "much better" to 5 "much worse") ; (4) stress (ranging from 1 "not at all" to 5 "extremely") ; (5) very satisfied or satisfied with life in general ; and (6) sense of belonging to local community (ranging from 1 "very strong" to 4

13. For the first cycle (2001), data code the breastfeeding duration variable differently. This is similar to Baker et al. (2008).

14. Definitions of the variables used in this study remained unchanged for the years 2003-2014. The CCHS underwent an important redesign in 2015 : "the objectives of the redesign were to review the sampling methodology, adopt a new sample frame, modernize the content and review the target population. As a result of the redesign, the 2015 CCHS has a new collection strategy, is drawing the sample from two different frames and has undergone major content revisions. With all these factors taken together, caution should be taken when comparing data from previous cycles to data released for the 2015 cycle onwards." (Statistics Canada, 2014). For CCHS data, we therefore focused our study on the 2003-2014 period.

15. There is no information on exclusive breastfeeding in NLSCY/SYC data.

16. We return to this point later in Methodology and Results sections.

"very weak"). In Appendix Table A4, we present summary statistics for outcome variables in Quebec and the rest of Canada before and after the QPIP went into effect. We also compute the pre-post differences for each group and test the null hypothesis of no difference between the treatment and control groups (p-values of the chi-square test of the difference). Overall, there are significant differences in breastfeeding but not in health variables.

For control variables, we use dummy variables for the respondent's age group (20-24, 25-29, 30-34, 35-39, 40-44 or 45-49 years old), highest level of education (less than a high school diploma, high school diploma, other post-secondary education, post-secondary education diploma) and immigration status (Canadian-born ; recent immigrant [0-9 years in Canada] ; non-recent immigrant [10 years or more in Canada]). We also include the natural logarithm of household size, a dummy equal to one for urban residence and zero otherwise and the provincial annual unemployment rate. Summary statistics for control variables are presented in Table A5 of the Appendix.

In CCHS data, only the birth year of the mother's youngest child aged 0–5 is available. Using this information, we approximate the youngest child's age. We have no information on the month or day of birth. Parent-reported data are subjective measures and may suffer from systematic biases. However, studies of the validity of parent-reported data indicate that they are informative about the underlying concept they are intended to capture and often display a strong correlation with professional assessment (De Los Reyes & Kazdin, 2005). Studies on Canadian parental leave reforms, and family policies more generally, also use the same measures (for more details see Baker et al., 2008; Baker & Milligan, 2008; Haeck et al., 2018, 2019).

4 Methodology

To estimate the effects of the QPIP on family outcomes, we use a DD model. We compare parents in Quebec to similar parents in the rest of Canada. Our empirical strategy is similar to that used by Patnaik (2019) and Haeck et al. (2019) in estimating the impact of the QPIP on child and parental outcomes. For the three datasets, the empirical model is as follows :

$$Y_{ipt} = \beta_0 + \beta_1 QUE_{ip} * POST_t + \beta_2 POST_t + \beta_3 X_{ipt} + \lambda_p + \delta_t + \epsilon_{ipt} \quad (1)$$

where i indexes individuals, p indexes provinces and t indexes the year. Y_{ipt} is the outcome of parent i observed in province p in year t. Outcomes studied here are breastfeeding and parental health and behavior. The term $POST$ is a variable dummy that takes a value of 1 if the birth year is 2006 or later (post-period reform). The term $QUE * POST$ equals 1 if

the individual lives in Quebec and gave birth in 2006 or later and takes a value 0 otherwise. The parameter of interest is β_1, representing the effect of QPIP on parents. The effect of the QPIP is identified by the change in Quebec, relative to other provinces, for children born in 2006 or later relative to children born in 2005 or earlier. The term X includes the controls listed in section 3. We include province fixed effects, λ_p, and time fixed effects, δ_t. ϵ_{ipt} is the error term.

Following Lebihan & Mao Takongmo (2018), we compute cluster-robust standard errors based on birth-year cohort and province. Because we analyze many outcomes, we also test whether the effects are robust after adjusting p-values for multiple hypothesis testing. The method described in Romano & Wolf (2005) is used and controls for the type I error rate within a family of outcomes at a fixed level of significance. Our adjusted p-values are determined by family of outcome (breastfeeding, health, post-partum health, parental behavior) [17] because they measure conceptually similar outcomes (Bütikofer et al., 2018).

Similar to Bullinger (2019), for health and parental behavior variables, we estimate the effect of the reform on parents with infants aged 0 or 1. [18] For breastfeeding and post-partum health, we use the information available to the fullest. In CCHS data, women who have given birth within 5 years of the survey data are asked a series of questions about breastfeeding. Similarly, from the NLSCY/SYC data, we only retain women who have given birth within 3 years of the survey date for breastfeeding and post-partum health variables, as suggested by Haeck et al. (2019). Finally, following Persson et al. (2019) and Jayachandran & Kuziemko (2011), we also exclude multiple births. [19]

Our identification strategy relies on three important assumptions. First, the common trend hypothesis must hold before the reform is introduced so that, in the absence of the policy, the mean outcomes of treatment and control groups would have similar trends. In Figure 1, we present the evolution of a few outcome variables (duration of exclusive breastfeeding, post-partum depression and positive interaction score) pre- and post-treatment using the NLSCY/SYC and CCHS data. The pre-reform period spans from birth year 2002 to 2005, and the post-reform period is 2006 and later. Clearly, the trends between Quebec and other Canadian provinces are similar during the pre-reform period. [20]

Second, our strategy assumes no other reforms that could have affected families were enacted in Quebec during our observation period. Canada-wide reforms are common to both

17. These families of outcomes are specified in the regression tables.

18. In NLSCY/SYC data, we have the exact date of birth of the child. However, in CCHS data, we only have the birth year of the mother's youngest child aged 0 to 5.

19. In Quebec, less than 3% of births are multiple (ISQ, 2019). Our results are robust to the inclusion of multiple births (available on request).

20. Later, in the Results section, we will return to this assumption with a more formal test of the common trend hypothesis.

groups and therefore are unlikely to affect them differently (Haeck et al., 2018).[21] In Quebec, a universal childcare program was initiated in 1997. The policy was phased in by age group, starting with 4-year-olds in 1997 and ending with 0–1-year-olds in 2000 (Haeck, Lebihan and Merrigan, 2018). Here, similar to Patnaik (2019), we keep only the observations in which the mother gave birth in 2002 or later (i.e., after the last expansion of the child care program). Finally, in January 2005, two new programs began in Quebec. The first is the Child Assistance Program, which takes the form of a refundable tax credit for families with children aged 0-17 years ; this replaced three existing programs. The second program is a new working income supplement for low-income households ("Work Premium"). Haeck et al. (2018) and Patnaik (2019) argued that these two reforms are unlikely to have a confounding effect with QPIP. These policies were introduced a full year prior to the implementation of QPIP and do not specifically target children born in 2006 and later but more broadly apply to families with children under 18 and workers in general. Finally, Milligan & Stabile (2007) reported that single parents (excluded here) are the most affected by these reforms.

Third, our methodology assumes no selection based on province-specific transitory shocks. First, Patnaik (2019) showed that it seems unlikely that parents delayed conception to be eligible for QPIP. Indeed, negotiations on the establishment of a specific plan in Quebec spanned 10 years, and the program was finally adopted only a few months before its effective date.[22] Second, although families outside of Quebec could have moved to Quebec to benefit from the QPIP, migration data do no support this hypothesis (Milan, 2011; Patnaik, 2019).

To test the sensitivity of the results obtained with the DD estimator, we also estimate a triple-differences (DDD) model using CCHS data.[23] [24] The first additional control group is partnered women without children. This will purge from the DD estimators any post-policy effect specific to Quebec that is common to the partnered mothers. We also use another control group : partnered women whose youngest child is aged 6-11 years. This will purge from the DD estimators any post-policy effect specific to Quebec that is common to two-parent families with children aged 0-11 years. Following Patnaik (2019), we have slightly

21. Among the Canada-wide reforms implemented during our observation period are the Child Disability Benefit in 2006, the Children's Fitness Tax Credit and Child Tax Credit in 2007 and the Universal Child Care Benefit in 2006. These reforms apply to all children in Canada aged 17 or under.

22. Patnaik (2019) also reported that the effects of QPIP have not decreased over time but have remained constant or even increased. This is inconsistent with the idea of delaying pregnancy to be eligible.

23. Due to the structure of the NLSCY/SYC, it is not possible to estimate DDD models. These surveys are missing data for age groups necessary for DDD estimation, and outcome variables differ by children's age group (for more details, see Haeck et al., 2018).

24. It is not possible to use the regression discontinuity design because we have an insufficient number of children, borned around the policy cutoff, in the NLSCY/SYC data (Haeck et al., 2019). Furthermore, for CCHS data, we have only the birth year of the mother's youngest child aged 0 to 5, and no information is available on the month and day of birth.

modified our basic equation to estimate the following DDD model :[25]

$$Y_{ipt} = \beta_0 + \beta_1 QUE_{ip} * POST_t + \beta_2 POST_t + \beta_3 QUE_{ip} * POST_t * Child01_{ipt} + \\ \beta_4 QUE_{ip} * Child01_{ipt} + \beta_5 IPOST_t * Child01_{ipt} + \beta_6 Child01_{ipt} + \beta_7 X_{ipt} + \lambda_p + \epsilon_{ipt} \quad (2)$$

where i indexes individuals, p indexes provinces and t indexes the year. Y_{ipt} is the outcome for individual i observed in province p in year t. The term $POST$ is a dummy variable that takes the value of 1 if the observation is in 2006 or later (post-treatment period). The term $Child01$ equals 1 if the individual has a child aged 0-1 years and is 0 otherwise. The parameter of interest is β_3, the coefficient on $QUE * POST * Child01$, which captures the effect of being in the treated province in the post-treatment period and having a child young enough to be eligible for the treatment. The term X includes controls listed in section 3. We include province fixed effects, λ_p. ϵ_{ipt} is the error term.

When we use women whose youngest child is aged 6-11 as an additional control group, we must focus on the years 2003-2011 because the date of birth of 6- to 11-year-olds is not available in CCHS data. We also compute cluster-robust standard errors on year and province for DDD models. We use the same approach when we use partnered women without children as an additional control group.[26]

The NLSCY/SYC and CCHS data have no information on parents' employment history in the year before the birth and do not specify whether the parents are eligible for parental leave (Baker and Milligan, 2008). Rather, our estimates measure the intention-to-treat (ITT) of the program (i.e., they report the effect of being exposed to QPIP and not the effect of directly benefiting from the QPIP). To derive treatment-on-the-treated (TOT) effects, the estimates must be multiplied by a factor of 1.25, which is the inverse of the percentage of mothers receiving QPIP benefits (see Haeck et al., 2019 for more details).[27]

Our DD strategy captures the effect of potential changes in birth seasonality (Haeck et al., 2019). Finally, for convenience of interpretation, we report results of linear probability models.[28]

25. In Equation 1, treatment is based on year of birth and province of residence. For DDD estimation (equation 2), we had to slightly modify the rule for eligibility. By definition, couples without children do not have data on births. For families whose youngest child is 6-11 years old, the date of birth is not available in CCHS data. Thus, we use the year 2006 as the beginning of the post-reform period and focus on ages 0-1 years.

26. In Appendix Table A6, we show that the results are similar for DD models when we restrict the period to 2003-2011 and when standard errors are clustered by province and year.

27. Prior studies of Canadian parental leave reforms, QPIP in particular, use the same strategy (Baker & Milligan, 2008, 2010; Haeck et al., 2019; Patnaik, 2019). For more details, see Patnaik (2019).

28. We also estimate probit models (marginal effects shown) and have similar findings (Appendix Table A7).

5 Econometric results

In this section, we present sequentially the empirical results of the impact of the QPIP on breastfeeding and parental health and behavior for the three data sets. Later we report results from a series of robustness models and explore heterogeneous effects of the reform. Finally, we discuss the possible reasons for these results. Following Haeck et al. (2018), estimated coefficients that are statistically significant according to adjusted p-value are presented in boldface. We report a plus or minus sign for each outcome, showing the direction the effect must take for the QPIP to be beneficial for families.[29] We also use the weights provided by Statistics Canada in the data.

For NLSCY/SYC data, in Tables 2, 4 and 6, three specifications are presented for the main estimates : (i) only province and year dummies as control variables ; (ii) adds additional control variables such as dummies for child's age in months, child and family characteristics[30] and provincial annual unemployment rate ; and (iii) adds birth characteristics.[31]

For CCHS data, in Tables 3 and 5, two specifications are reported for main estimates : (i) only province and year dummies as control variables ; (ii) adds additional control variables such as child and family characteristics[32] and provincial annual unemployment rate.

5.1 Breastfeeding

In Table 2, we present results on breastfeeding based on data from the NLSCY/SYC. We find that the effect of the QPIP on the incidence of breastfeeding is not significant. As suggested by Baker & Milligan (2008), this is consistent with the evidence showing little impact of return to work on breastfeeding incidence, especially in an environment in which 50 weeks of paid leave were already available with the federal plan. However, we report that the QPIP had a significant impact on duration of breastfeeding. Indeed, our estimates suggest an 0.581-month increase in breastfeeding duration, for an effect on the treated of 0.73 months. We also show that the reform had a significant positive effect on the proportion of mothers breastfeeding their child for at least 3, 6, 9 and 12 months. In particular, we

29. See Haeck et al. (2018) and Haeck et al. (2019) for use of plus and minus signs to clarify the direction of the impact of the reform.

30. In NLSCY/SYC data, child and family characteristics include child's gender, maternal and paternal education, maternal and paternal age, maternal and paternal immigrant status, siblings and urban/rural region of residence (presented in Section 3)

31. Birth characteristics include dummies for premature birth, normal birth weight, high blood pressure during pregnancy, gestational diabetes, vaginal delivery, receipt of prenatal care, child's health at birth and child's receipt of special medical care after birth (presented in Section 3).

32. In CCHS data, child and family characteristics include maternal education, maternal age, maternal immigrant status, number of children in the household, household size and urban/rural region of residence. No information on birth characteristics is provided (presented in Section 3).

find a 7.4 percentage point increase in the probability of breastfeeding past the critical six-month period. The likelihood of halting breastfeeding due to work is also reduced by 4.5 percentage points after the implementation of the QPIP. These results are consistent across all specifications and robust with the p-values adjusted.

Turning now to the breastfeeding results from CCHS data (Table 3), we observe that the estimates are very similar to those obtained with NLSCY/SYC data. There is no evidence of a change in incidence of breastfeeding following the implementation of QPIP. However, the estimates suggest that the duration of breastfeeding increased by 0.612 months, and the proportion of mothers breastfeeding their child for at least 3, 6, 9 and 12 months also increased. In particular, we report a 6.7 percentage point increase in the probability of breastfeeding past the critical six-month period. We also find an 0.252-month increase in exclusive breastfeeding duration, but this finding is not robust after adjusting the p-values. The World Health Organization (WHO) recommends exclusive breastfeeding during the first 6 months of the child's life, but here we find that the reform has a positive but statistically insignificant effect on this variable.

Altogether, these sets of results suggest that the QPIP had a significant and positive impact on breastfeeding duration.

5.2 Parental health

We now present the effects of the QPIP on parental health using NLSCY/SYC data (Table 4). We find that the reform had a positive but statistically insignificant effect on the odds of parents being in excellent/very good health. The maternal depression score shows a significant decline of -0.532, which is more than 11 percent of a standard deviation. In other words, the estimates suggest that the reform leads to a 12.8 percent decline in maternal depression score relative to the mean score of 4.17 for the intention-to-treat effect. Information on post-partum health is also available in NLSCY/SYC data. We show that QPIP had no significant impact on post-partum depression or post-partum problems. These findings are consistent across all specifications and robust when we adjusted the p-values.

In Table 5, we report the maternal health results from CCHS data. The estimates suggest a significant positive 7.2 percentage point effect on the odds of being in excellent/very good health. However, this finding is not robust when we control for the false discovery rate (adjusted p-value = 0.1089). We also find a significant positive 3.9 percentage point effect on the odds of being very satisfied/satisfied with life (robust when p-values are adjusted). Finally, QPIP has no significant impact on the measures of mental health, self-perceived health compared to one year ago, stress and belonging.

Overall, we find modest effects of the policy on parental health.

5.3 Parental behavior

NLSCY/SYC data include variables on parenting interaction and involvement (Table 6). We report no effect of QPIP on family dysfunction and ineffective parenting scores. A significant positive impact on positive interaction score is found, although it is not robust when p-values are adjusted. Exploring the individual parenting activities, our estimates suggest a 6.3 percentage point increase in focusing time, a 7.9 percent increase relative to the mean score. We also report increased time spent playing games with the child and praising the child. However, we found no effects of the policy on other activities, such as teaching new words or singing songs with the child.

To summarize, it appears that the reform led to changes in the manner in which parents interact with their child.

5.4 Robustness checks

Our identification strategy relies on several assumptions. In this section, we present the results of several robustness checks for NLSCY/SYC and CCHS data.[33] First, we test whether the common time trend assumption holds before the QPIP is introduced. Second, we use the province of Ontario as an alternative control group.[34] Last, we present estimates from the DDD specifications.

In Appendix Table A8, we formally test for equality of trends using data for children born before 2006 (the pre-QPIP period) for all data sets. Similar to Bullinger (2019) and Pac et al. (2019), we replicate our analysis by replacing the DD interaction term with an interaction of linear time trend and the treatment group indicator (labeled TR*Que). We show that the coefficients are not significant, giving support to the assumption that the trends for the outcome variables were parallel for treated and control groups before the policy.

In Table 7, for NLSCY/SYC data, we use Ontario as a control group. Although the magnitude of the results is higher, the results for the estimated effects of the QPIP are

33. For brevity, we only show the estimates including child/family/birth characteristics for NLSCY/SYC data and child/family characteristics for CCHS data. Results from the other specifications are similar and available upon request.

34. Ontario is the most populous province in Canada and is the western neighbor of Quebec. Ontario's economy is similar to Quebec's; business cycle shocks affect them similarly, so policy effects cannot be confounded with effects due to regional differences in economic activity. See also Haeck et al. (2019) and Dunatchik et al. (2019) for the use of Ontario as a control group in evaluation of QPIP's effects on children and on maternal labor outcomes.

similar to the baseline estimates. Indeed, we continue to find that the policy had a significant impact on family outcomes.

In Table 8, we report estimates from a number of robustness checks for CCHS data. Each panel represents a different regression. In Panel A, we use Ontario as an alternative control group and find that the results for the estimated effects of the policy are similar to the baseline estimates but with a higher amplitude. As additional robustness tests, we also report the estimates of the effect of the QPIP when alternative control groups are added (Panels B and C). We estimate DDD models using all women (with partners) who do not have their own children at home (called the "childless group of women") as an additional control group. We show that the reform has a significant effect on maternal mental health and life satisfaction. However, these results are not robust when we control for the false discovery rate. We also estimate models for partnered women whose youngest child is aged 6-11 years as an additional control group. We report that the QPIP has no significant impact on maternal health outcomes.

Finally, in falsification tests, similarly to Baker & Milligan (2008) and Bullinger (2019), we test whether the changes in family outcomes are the result of better birth outcomes, such as birth weight, c-section birth or preterm birth. In Appendix Table A9, we show no effects of QPIP on pre-birth variables.

5.5 Heterogeneous effects

In this section, we investigate the heterogeneous effects of the reform. We examine whether the effects of the policy varied according to maternal and birth experience characteristics. Due to availability of the data, we consider heterogeneous effects by the mother's education level, whether the mother had a Caesarean section, whether the child was born prematurely, whether the birth was a first birth (versus a high-order birth) and the child's gender. Thus, we add, in our baseline specification, an interaction term between the subgroup and an indicator for QPIP eligibility (i.e., having a child born in Quebec in 2006 or later). Evidence reveals that highly educated mothers benefited more from the reform by having substantially increased compensation while on leave and spending more time away from work (Haeck et al., 2019). Similarly, the literature reports that first-time mothers or vulnerable mothers and children (e.g., mothers who underwent Caesarean section or children born preterm) have different needs (Beuchert et al., 2016 ; Bütikofer et al., 2018).

Table 9 presents results for NLSCY/SYC data. Analyses by maternal education suggest that for breastfeeding, the reform affected mostly highly educated mothers (although the coefficients are significant at 10% and not robust to the adjustment of p-values) (Panel A).

For health, we found little evidence that QPIP differently affected mothers by education. For parental behavior, we report that the QPIP is associated with an increase in parental involvement, regardless of maternal education, but these effects seem smaller for highly educated mothers. In Panel B of Table 9, the coefficient on the interaction term QPIP*CSection is insignificant for breastfeeding and health outcomes, suggesting that the QPIP had a similar effect on mothers for these variables regardless of whether she delivered by Caesarean section. However, for parental behavior, we find larger effects of the reform for mothers who gave birth by Caesarean section. In Panel C of Table 9, the coefficient on the interaction term QPIP*Premature is insignificant for breastfeeding and parental behavior, suggesting that the reform had a similar impact on mothers for these variables, regardless of whether the child was born prematurely. Interestingly, we find that there is a significant negative effect on the odds of having post-partum depression for mothers with children born prematurely. In Panel D of Table 9, the coefficient on the interaction term QPIP*FirstChild is insignificant for all outcomes, except for incidence of breastfeeding and playing games. In Panel E of Table 9, the effects are similar regardless of the child's sex. The only exceptions are stopping breastfeeding due to work and praising the child, where we observe different effects depending on the sex of the child.

Finally, in Table 10, we present results for CCHS data. We find that the reform has mostly affected breastfeeding among highly educated mothers. However, for health, the effects are similar regardless of the mother's level of education.

In summary, our results points to greater changes in breastfeeding outcomes among highly educated mothers. We also report stronger effects in health outcomes for mothers with children born prematurely. For parental behavior, the reform has a relatively larger impact for mothers who had a Caesarean section.

5.6 Discussion

The QPIP seems to have had a significant and positive effect on duration of breastfeeding. However, the impact is not significant for the probability of initiating breastfeeding and exclusively breastfeeding for the first six months of life, the public health target. The lack of an initiation effect may have occurred because of high pre-reform rates of breastfeeding in Quebec (84 percent) and because Quebec mothers already had access to generous paid leave (50 weeks) with the federal plan. As reported by Baker & Milligan (2008) and Huang & Yang (2015), breastfeeding initiation especially reflects the combined effect of a lack of knowledge about the benefits of breastfeeding, technical difficulties, lack of support and the fragile state of health of the mother and the child. However, the main reason mothers cited as

causing them to stop breastfeeding at longer durations is the need to return to work. In such cases, parental leave reforms could remedy this problem. Our findings for breastfeeding are consistent with the literature, which reports a significant effect of maternity leave on intensive margin but not on extensive margin (Baker et al., 2008 ; Huang et al., 2015 ; Haeck et al., 2019 ; Pac et al., 2019). For example, using the 2001 parental leave reform in Canada and CCHS data, Baker & Milligan (2008) reported an increase of 0.74 months for breastfeeding duration and an increase of 5.7 percentage points for exclusive breastfeeding during the first 6 months of the child's life. For QPIP reform, we report a less pronounced increase in breastfeeding duration (0.61 months) with CCHS data. One reason could be that the QPIP has mainly modified parents' income while on leave, lowered conditions of eligibility and introduced daddy's quotas. Although studies show that mothers' leave participation rates increased and that mothers returned to work later post-reform, the number of total weeks available to previously federally eligible mothers has not increased. However, the 2001 reform is characterized by an additional 25 weeks of benefits paid to parents, which could explain a more important effect on breastfeeding.

For parental health, in general, we find no effects of the QPIP, except for maternal depression score and life satisfaction, for which we report some limited beneficial effects. We also show that the reform had no impact on post-partum health. These findings are in line with Baker & Milligan (2008) and Sayour (2019), who reported that federal parental leave in 2001 does not affect mothers' health (overall health, depression, post-partum depression and problem) or fathers' health.[35] In a working paper, Haeck et al. (2016) used administrative data sets on medical services to estimate the impact of the two reforms (federal in 2001 and Quebec in 2006) on mothers' health. They report no significant impact of either reform on maternal health care costs (physical or mental) or prescriptions drug costs and number of hospitalizations. One of the reasons given is that before QPIP, the policy in place was already relatively generous with its 50 weeks of paid leave. Indeed, evidence shows that stronger positive effects of enhancements of parental leave policies on parental health are found in contexts in which this type of policy is initiated. In contrast, when reforms occur in the context of an already relatively generous policy (six months of paid leave or more), the effects tend to be smaller in magnitude or statistically not significant. For example, Bütikofer et al. (2018) found that the introduction of paid maternity leave in Norway in 1977 improved a range of maternal health outcomes.[36] However, for subsequent expansions in paid maternity leave between 1987 and 1992, they report smaller effects and in the majority

35. They also found an insignificant effect on children's health.

36. The studied variables are BMI, diabetes, blood pressure, cholesterol and cardiac risk, mental health, general health, pain and health behaviors of mothers (smoking, exercise).

of cases no significant effect. Because QPIP increased parental income while on leave, we could also mention the literature on the impact of financial resources on family outcomes. For example, Milligan & Stabile (2011) showed that the expansion of the Canadian Child Benefit improved maternal depression score but had no affect on maternal health status. Those results are in line with ours.

For parental behavior outcomes, we found increased maternal involvement (i.e., following the reform, mothers significantly increased the amount of time spent focusing on their child, playing with their child and praising their child). Baker & Milligan (2008) and Sayour (2019) showed that federal parental leave had no significant effect on parental interaction and involvement. Our findings for these variables differ for several reasons. For example, the QPIP introduced a specific leave for the father and increased financial support during leave. It may be that the father's support is an important feature for the family and allows the mother to rest more and be less alone, which in turn would be beneficial for mother-child relationships (Persson et al., 2019). Haeck et al. (2019) showed that QPIP increased the amount of time mothers spend with their child. This extra time could have resulted in increases in breastfeeding duration and parental engagement. Indeed, Bullinger (2019) reported that paid family leave in California significantly increased parental engagement (as measured by reading to children).[37]

We also analyze whether the effects of the policy varied with characteristics of mothers and children and the birth experience. We find that highly educated mothers benefited more from the reform because they increased the time they breastfed their child, which is not the case for low educated mothers. Our estimates are consistent with Haeck et al. (2019) and Patnaik (2019) : The reform caused a significantly larger increase in the leave participation rates of highly educated parents compared to less-educated parents and mainly affected the benefits paid to higher income families. Moreover, highly educated mothers spent more time away from work (0.62 months according to Haeck et al. (2019)), whereas this was not the case for low-educated mothers. Clearly, these findings suggest that QPIP could not reduce disparities in breastfeeding because no significant effect was found for low-educated families.

Overall, our results show a significant and positive impact on breastfeeding duration and parental involvement. However, the reform had limited positive effects on parental health. Prior to the QPIP, the federal program was already generously offering a total of 50 weeks of parental leave. Evidence shows that there are diminishing returns to maternity leave length and that the effects differ depending on whether paid leave is being introduced or expanded

37. Evidence also suggests a positive relationship between breastfeeding and the quality of mother-child interactions (Albagli & Rau, 2018) as well as between breastfeeding and post-partum mental health (Haeck et al., 2016).

(Beuchert et al., 2016; Dahl et al., 2016; Bütikofer et al., 2018). Our findings are consistent with those of Haeck et al. (2019) on child well-being. They also reported that the effects of QPIP on children's health, behavior and cognitive development are generally positive but small and not always significant. As suggested by Haeck et al. (2019), the limited effects of the reform on family health could also be explained by the fact that the objectives of the QPIP were mainly centered around the economy and financial security, without explicitly mentioning improving the well-being of children and parents. Indeed, the program wanted to support mothers in the labour market, facilitate work-family balance and respond to men's desire to actively play their role as father (CGAP, 2006). Thus, the QPIP mainly raised the benefits paid to parents while on leave, extended coverage to reach more parents and reserved fathers' leave ; however, this does not increase the total paid maternity leave. This is quite different from typical parental leave programs, such as that in Canada in 2001 or California in 2004.

It is difficult to determine the mechanisms that led to these results. These changes could be driven by changes in family income or increased time spent at home by fathers after childbirth. The reform also increased time spent at home for mothers (only for those who were previously not eligible for paid leave under the federal program) (Haeck et al., 2019). We cannot say precisely which of these mechanisms is responsible for our findings ; the answer could be one or a combination of them. However, each of these channels is justified through existing evidence, and all may plausibly be behind the changes in family outcomes (Bullinger, 2019).

Finally, the last question that can be asked is whether the effects of the reform persist as the child ages. In other words, do we detect effects on health and parental behavior once the child is 2 years old or older ? In Appendix Table A10, we report longer-run effects of QPIP for children aged 2-3 (NLSCY/SYC data) and children aged 2-5 (CCHS data). Using NLSCY/SYC data, we found that the reform significantly affects the health of parents when the child is aged 2-3, but the results are not robust when we control for the false discovery rate. Using CCHS data, we found that the effects on health are insignificant in the long term.

Turning now to the effects for parental behavior when the child is aged 2-3, the results reveal that the reform has a longer-run significant positive impact on parental behavior. Indeed, the QPIP is associated with a significant increase of 0.453 for positive interaction score, which is more than 20 percent of a standard deviation. Our results are consistent with the long-term effects obtained by Patnaik (2019) on parents' time use. She reported that mothers increased time spent in non-market work. More particularly, mothers reduced their time in housework (by 18 minutes) and increased their time in childcare (by 48 minutes).[38]

38. Patnaik (2019) also found a larger increase for fathers in time spent in non-market work. The author

This could then be translated into more and/or better interactions between the mother and the child.

6 Conclusion

This paper estimates the impact of QPIP on breastfeeding and parental health and behavior. Findings suggest that the reform improved breastfeeding duration and parental involvement. For parental health, we find some limited positive effects. Most of the effects we uncover are driven by highly educated mothers, and in some cases by mothers who experienced complications at birth.

Our findings are in line with recent evidence on the effects of QPIP on leave utilization, sex specialization, family financial resources and child well-being. This study contributes to research on the effects of paid parental leave expansions and the mechanisms that affect families. In particular, it contributes to a growing literature on daddy's quotas and the causal effect of paid parental leave on maternal health.

Our results have important implications for policymakers in other jurisdictions that offer paid parental leave or are interested in doing so. For example, since December 2017, the federal government in Canada has offered two options for parental benefits for new parents : standard parental benefits (35 weeks with a benefit rate of 55 percent—that is to say, the one previously in place) or extended parental benefits (61 weeks with a benefit rate of 33%). Our findings can be useful in evaluating the effect of that type of program on family outcomes. Finally, future studies should be conducted to determine whether the QPIP has short- and long-term effects on families using longitudinal data and/or administrative data.

provides several possible explanations for the increase in mothers' childcare, including greater bargaining power for mothers who prefer childcare to housework or a comparative maternal advantage in childcare versus housework. Mothers may also be less willing to reduce time in childcare than time in other household duties.

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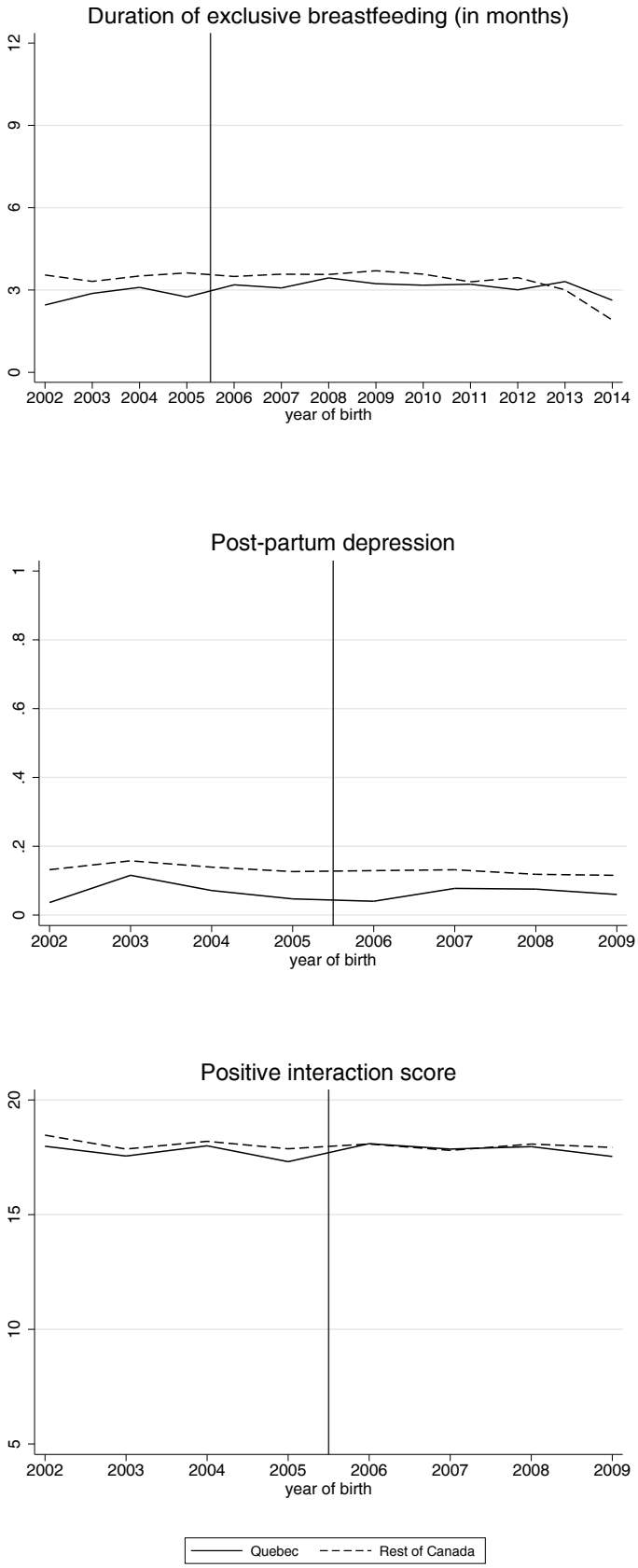
Figure 1 – Trends for families in Quebec and the rest of Canada, by year of birth.



Notes: Shows the trajectories for the means of three outcomes pre- and post-treatment. Sources: NLSCY/SYC and CCHS data.

Table 1 – QPIP vs Federal parental leave plan

	Employment Insurance (Federal Plan) as of 2001		QPIP (Quebec only) as of 2006			
			Basic plan		Special plan	
	Duration (weeks)	Benefit rate (percent)	Duration (weeks)	Benefit rate (percent)	Duration (weeks)	Benefit rate (percent)
Maternity leave	15	55	18	70	15	75
Parental leave	35	55	7	70	25	75
			25	55		
Paternity leave	0	0	5	70	3	75
Eligibility conditions		600 hours of insurable employment		$CA2,000 of insured income		$CA2,000 of insured income
Self-employed		Not covered		Covered		Covered
Waiting period		2 weeks		None		None
Maximum insurable earnings						
Year 2006		$CA39,000		$CA57,000		$CA57,000
Year 2014		$CA48,600		$CA69,000		$CA69,000

Table 2 – The impact of QPIP on breastfeeding (NLSCY/SYC data)

Dependent variable	Mean (s.d)	QPIP (1)	N	QPIP (2)	N	QPIP (3)	N
Incidence of breastfeeding	0.82	0.035*	20,924	0.015	19,354	0.016	18,466
	(0.39)	(0.020)		(0.020)		(0.020)	
Duration of breastfeeding	4.34	**0.694****	18,999	0.439*	17,570	**0.581****	16,747
(in months)	(4.20)	**(0.303)**		(0.255)		**(0.254)**	
Breastfeeding $\geq$ 3 months	0.52	**0.078****	18,999	0.052*	17,570	**0.066****	16,747
	(0.50)	**(0.036)**		(0.030)		**(0.032)**	
Breastfeeding $\geq$ 6 months	0.52	**0.101*****	18,999	0.060**	17,570	**0.074****	16,747
	(0.50)	**(0.035)**		(0.030)		**(0.032)**	
Breastfeeding $\geq$ 9 months	0.32	**0.059****	18,999	0.041	17,570	**0.055****	16,747
	(0.47)	**(0.030)**		(0.025)		**(0.025)**	
Breastfeeding $\geq$ 12 months	0.17	0.050*	18,999	0.039	17,570	**0.051****	16,747
	(0.38)	(0.029)		(0.025)		**(0.022)**	
Stopped breastfeeding due	0.12	**-0.039*****	18,978	**-0.048*****	17,557	**-0.045*****	16,737
to work	(0.32)	**(0.012)**		**(0.011)**		**(0.010)**	
Control variables							
Province and year dummies		Yes		Yes		Yes	
Provincial annual unemployment rate		No		Yes		Yes	
Child age in month dummies		No		Yes		Yes	
Child and family characteristics		No		Yes		Yes	
Birth characteristics		No		No		Yes	

Notes: For each dependent variable, we report the estimated policy effects under different specifications (β_1 shown). Standard errors (in parentheses) are clustered by province and by birth-year cohort. Statistically significant estimates according to the adjusted p-values are presented in bold.
***: significant at 1% ; **: significant at 5% ;*: significant at 10%

Table 3 – The impact of QPIP on breastfeeding (CCHS data)

Dependent variable	Mean (s.d)	QPIP (1)	N	QPIP (2)	N
Incidence of breastfeeding	0.84	0.039*	23,110	0.036	22,765
	(0.37)	(0.023)		(0.024)	
Duration of breastfeeding	4.27	**0.640****	18,615	**0.612*****	18,341
(in months)	(4.24)	**(0.280)**		**(0.195)**	
Breastfeeding $\geq$ 3 months	0.52	**0.072****	18,615	**0.056****	18,341
	(0.50)	**(0.030)**		**(0.024)**	
Breastfeeding $\geq$ 6 months	0.37	**0.066****	18,615	**0.067*****	18,341
	(0.48)	**(0.031)**		**(0.024)**	
Breastfeeding $\geq$ 9 months	0.28	0.062**	18,615	**0.063*****	18,341
	(0.45)	(0.031)		**(0.023)**	
Breastfeeding $\geq$ 12 months	0.18	0.039*	18,615	**0.048*****	18,341
	(0.38)	(0.023)		**(0.018)**	
Duration of exclusive breastfeeding	2.80	**0.365*****	21,447	0.252**	21,140
(in months)	(2.58)	**(0.129)**		(0.126)	
Exclusive breastfeeding $\geq$ 3 months	0.50	**0.059****	21,780	0.048*	21,471
	(0.50)	**(0.026)**		(0.026)	
Exclusive breastfeeding $\geq$ 6 months	0.17	0.023	21,780	0.007	21,471
	(0.37)	(0.022)		(0.022)	
Control variables					
Province and year dummies		Yes		Yes	
Provincial annual unemployment rate		No		Yes	
Child and family characteristics		No		Yes	

Notes: For each dependent variable, we report the estimated policy effects under different specifications (β_1 shown). Standard errors (in parentheses) are clustered by province and by birth-year cohort. Statistically significant estimates according to the adjusted p-values are presented in bold.
***: significant at 1% ; **: significant at 5% ;*: significant at 10%

Table 4 – The impact of QPIP on parental health (NLSCY/SYC data)

Dependent variable	Mean (s.d)	QPIP (1)	N	QPIP (2)	N	QPIP (3)	N
Health							
Mother in excellent/very good health (+)	0.77	0.008	11,002	0.011	10,463	0.004	10,158
	(0.42)	(0.017)		(0.016)		(0.015)	
Father in excellent/very good health (+)	0.76	0.021	10,819	0.009	10,457	0.003	10,152
	(0.43)	(0.030)		(0.030)		(0.029)	
Mother's depression score (-)	4.17	**-0.483****	10,684	**-0.469****	10,203	**-0.532****	9,962
	(4.65)	**(0.201)**		**(0.215)**		**(0.212)**	
Post-partum health							
Post-partum depression (-)	0.05	0.018	17,350	0.015	16,092	0.019	15,429
	(0.23)	(0.014)		(0.016)		(0.016)	
Post-partum problem (-)	0.12	0.012	17,332	0.010	16,081	0.020	15,419
	(0.32)	(0.017)		(0.019)		(0.016)	
Control variables							
Province and year dummies		Yes		Yes		Yes	
Provincial annual unemployment rate		No		Yes		Yes	
Child age in month dummies		No		Yes		Yes	
Child and family characteristics		No		Yes		Yes	
Birth characteristics		No		No		Yes	

Notes: For each dependent variable, we report the estimated policy effects under different specifications (β_1 shown). Standard errors (in parentheses) are clustered by province and by birth-year cohort. Statistically significant estimates according to the adjusted p-values are presented in bold.
***: significant at 1% ; **: significant at 5% ;*: significant at 10%

Table 5 – The impact of QPIP on maternal health (CCHS data)

Dependent variable	Mean (s.d)	QPIP (1)	N	QPIP (2)	N
Mother in excellent/very good health (+)	0.77 (0.42)	0.035 (0.026)	10,220	0.072** (0.033)	10,054
Mother in excellent/very good mental health (+)	0.84 (0.36)	-0.015 (0.024)	10,218	0.007 (0.025)	10,052
Self-perceived health compared to one year ago (-)	2.79 (0.76)	-0.026 (0.051)	10,204	-0.038 (0.058)	10,040
Very satisfied/satisfied with life in general (+)	0.95 (0.22)	0.021* (0.012)	10,065	**0.039** (0.018)**	9,903
Stress (-)	2.89 (0.88)	-0.012 (0.061)	10,205	-0.086 (0.059)	10,040
Belonging (-)	2.56 (0.83)	-0.063 (0.075)	10,146	-0.040 (0.088)	9,983
Control variables					
Province and year dummies		Yes		Yes	
Provincial annual unemployment rate		No		Yes	
Child and family characteristics		No		Yes	

Notes: For each dependent variable, we report the estimated policy effects under different specifications (β_1 shown). Standard errors (in parentheses) are clustered by province and by birth-year cohort. Statistically significant estimates according to the adjusted p-values are presented in bold.
***: significant at 1% ; **: significant at 5% ;*: significant at 10%

Table 6 – The impact of QPIP on parental behavior (NLSCY/SYC data)

Dependent variable	Mean (s.d)	QPIP (1)	N	QPIP (2)	N	QPIP (3)	N
Family dysfunction index (-)	7.93	-0.055	10,713	0.098	10,236	0.162	9,958
	(5.05)	(0.307)		(0.277)		(0.267)	
Ineffective parenting style (-)	1.88	-0.012	10,868	-0.047	10,087	-0.049	9,802
	(1.61)	(0.274)		(0.082)		(0.089)	
Positive interaction (+)	17.73	0.250*	10,824	0.224*	10,055	0.213*	9,770
	(2.16)	(0.132)		(0.123)		(0.123)	
Spends 5 minutes of focused time -	0.79	**0.060****	11,217	**0.056*****	10,401	**0.063*****	10,105
many times a day (+)	(0.41)	**(0.023)**		**(0.018)**		**(0.018)**	
Does a special activity that the child	0.64	0.028	11,140	0.026	10,340	0.021	10,046
enjoys once a day or more (+)	(0.48)	(0.027)		(0.026)		(0.026)	
Laughs with child many times	0.9	-0.010	11,215	-0.017	10,400	-0.010	10,104
a day (+)	(0.30)	(0.020)		(0.019)		(0.019)	
Plays games with child once	0.87	0.043	11,199	**0.038****	10,392	0.036**	10,096
a day or more (+)	(0.34)	(0.027)		**(0.015)**		(0.015)	
Praises the child many times	0.82	**0.071*****	11,220	**0.072*****	10,402	**0.075*****	10,106
each day (+)	(0.39)	**(0.026)**		**(0.019)**		**(0.018)**	
Sings songs with the child (+)	4.56	0.028	11,319	-0.011	10,460	-0.026	10,158
	(0.88)	(0.066)		(0.051)		(0.051)	
Teaches child new words (+)	4.5	0.046	11,297	0.040	10,439	0.069	10,136
	(1.13)	(0.112)		(0.062)		(0.072)	
Takes the child outside for	4.16	-0.086	11,309	-0.070	10,453	-0.079	10,152
a walk or to play(+)	(1.00)	(0.067)		(0.056)		(0.056)	
Control variables							
Province and year dummies		Yes		Yes		Yes	
Provincial annual unemployment rate		No		Yes		Yes	
Child age in months dummies		No		Yes		Yes	
Child and family characteristics		No		Yes		Yes	
Birth characteristics		No		No		Yes	

Notes: For each dependent variable, we report the estimated policy effects under different specifications (β_1 shown). Standard errors (in parentheses) are clustered by province and by birth-year cohort. Statistically significant estimates according to the adjusted p-values are presented in bold.
***: significant at 1% ; **: significant at 5% ;*: significant at 10%

Table 7 – Robustness checks (NLSCY/SYC data)

	Control group: Ontario	
Dependent variable	QPIP	N
Breastfeeding		
Incidence of breastfeeding	0.007	6,535
	(0.022)	
Duration of breastfeeding	0.359	5,891
(in months)	(0.265)	
Breastfeeding $\geq$ 3 months	**0.106*** **	5,891
	(0.027)	
Breastfeeding $\geq$ 6 months	**0.095*** **	5,891
	(0.028)	
Breastfeeding $\geq$ 9 months	0.019	5,891
	(0.025)	
Breastfeeding $\geq$ 12 months	0.017	5,891
	(0.028)	
Stopped breastfeeding due	**-0.046***	5,885
to work	**(0.022)**	
Health		
Mother in excellent/very good	0.030	3,827
health (+)	(0.018)	
Father in excellent/very good	0.024	3,827
health (+)	(0.029)	
Mother's depression score (-)	**-0.898** **	3,755
	(0.320)	
Post-partum health		
Post-partum depression (-)	-0.005	5,243
	(0.018)	
Post-partum problem (-)	-0.026	5,242
	(0.016)	
Parental behavior		
Family dysfunction index (-)	-0.050	3,764
	(0.378)	
Ineffective parenting style (-)	0.051	3,729
	(0.136)	
Positive interaction (+)	0.353*	3,712
	(0.176)	
Spends 5 minutes of focused time -	**0.102*** **	3,826
many times a day (+)	**(0.021)**	
Does a special activity that the child	0.039	3,794
enjoys once a day or more (+)	(0.029)	
Laughs with child many times	0.010	3,826
a day (+)	(0.034)	
Plays games with child once	0.040*	3,823
a day or more (+)	(0.020)	
Praises the child many times	**0.093*** **	3,826
each day (+)	**(0.025)**	
Sings songs with the child (+)	0.066	3,827
	(0.065)	
Teaches child new words (+)	0.250**	3,820
	(0.113)	
Takes the child outside for	-0.127	3,825
a walk or to play(+)	(0.089)	

Notes: For each dependent variable, we report the estimated policy effects under different specifications (β_1 shown). Child, family and birth characteristics are included in all regressions. Standard errors (in parentheses) are clustered by province and by birth-year cohort. Statistically significant estimates according to the adjusted p-values are presented in bold.
***: significant at 1% ; **: significant at 5% ;*: significant at 10%

Table 8 – Robustness checks (CCHS data)

	Panel A: Control group: Ontario		Panel B: DDD (childless women)		Panel C: DDD (women with children aged 6-11)	
Dependent variable	QPIP	N	QUE*POST*Child01	N	QUE*POST*Child01	N
Breastfeeding						
Incidence of breastfeeding	0.042	12,796	N.A		N.A	
	(0.035)					
Duration of breastfeeding	**0.736*** **	10,405	N.A		N.A	
(in months)	**(0.257)**					
Breastfeeding ≥ 3 months	**0.073** **	10,405	N.A		N.A	
	(0.029)					
Breastfeeding ≥ 6 months	**0.073** **	10,405	N.A		N.A	
	(0.028)					
Breastfeeding ≥ 9 months	**0.084** **	10,405	N.A		N.A	
	(0.031)					
Breastfeeding ≥ 12 months	**0.059** **	10,405	N.A		N.A	
	(0.027)					
Duration of exclusive breastfeeding	0.327*	11,948	N.A		N.A	
(in months)	(0.166)					
Exclusive breastfeeding ≥ 3 months	0.070*	12,146	N.A		N.A	
	(0.035)					
Exclusive breastfeeding ≥ 6 months	0.016	12,146	N.A		N.A	
	(0.028)					
Health						
Mother in excellent/very good	**0.120** **	5,545	0.039	25,202	-0.013	19,037
health (+)	**(0.044)**		(0.032)		(0.036)	
Mother in excellent/very good	**0.134** **	5,545	-0.041*	25,194	-0.020	19,032
mental health (+)	**(0.055)**		(0.022)		(0.030)	
Self-perceived health compared	-0.184	5,541	0.009	25,192	-0.027	19,023
to one year ago (-)	(0.115)		(0.053)		(0.045)	
Very satisfied/satisfied with life	**0.079*** **	5,456	0.026**	24,938	0.020	18,860
in general (+)	**(0.028)**		(0.012)		(0.018)	
Stress (-)	-0.215	5,536	-0.009	25,178	-0.065	19,010
	(0.135)		(0.078)		(0.066)	
Belonging (-)	0.014	5,503	0.083	25,026	0.110*	18,900
	(0.177)		(0.059)		(0.064)	

Notes: Child and family characteristics are included in all regressions. For Panel A, standard errors (in parentheses) are clustered by province and by birth-year cohort. For Panels B and C, standard errors (in parentheses) are clustered by province and year and cover years 2003-2011. Statistically significant estimates according to the adjusted p-values are presented in bold.
***: significant at 1% ; **: significant at 5% ;*: significant at 10%

Table 9 – Heterogeneous effects (NLSYC/SYC data)

	Panel A: Maternal education		**Panel B: C-Section**		**Panel C: Premature**		**Panel D: First child**		**Panel E: Child's sex**	
Dependent variable	QPIP	QPIP*HighEduc	QPIP	QPIP*CSection	QPIP	QPIP*Premature	QPIP	QPIP*FirstChild	QPIP	QPIP*Boy
Breastfeeding										
Incidence of breastfeeding	-0.001	0.020	0.013	0.012	0.017	-0.015	0.028	**-0.044*** **	0.003	0.024
	(0.028)	(0.023)	(0.022)	(0.027)	(0.021)	(0.060)	(0.022)	**(0.014)**	(0.022)	(0.018)
Duration of breastfeeding	0.059	0.630*	**0.580** **	0.003	**0.630** **	-0.665	**0.626** **	-0.308	0.651**	-0.134
(in months)	(0.398)	(0.351)	**(0.257)**	(0.157)	**(0.271)**	(0.700)	**(0.290)**	(0.235)	(0.308)	(0.344)
Breastfeeding $\geq$ 3 months	-0.004	0.085*	0.058*	0.034	**0.070** **	-0.048	**0.074** **	-0.037	0.052*	0.027
	(0.045)	(0.046)	(0.033)	(0.032)	**(0.032)**	(0.078)	**(0.033)**	(0.033)	(0.029)	(0.030)
Breastfeeding $\geq$ 6 months	0.001	0.088*	**0.070** **	0.017	**0.078** **	-0.060	**0.085*** **	-0.046	**0.071** **	0.005
	(0.048)	(0.047)	**(0.032)**	(0.030)	**(0.031)**	(0.079)	**(0.032)**	(0.028)	**(0.030)**	(0.033)
Breastfeeding $\geq$ 9 months	0.031	0.029	**0.055** **	0.003	**0.061** **	-0.078	**0.066** **	-0.049	**0.069** **	-0.027
	(0.048)	(0.043)	**(0.025)**	(0.014)	**(0.026)**	(0.050)	**(0.029)**	(0.031)	**(0.029)**	(0.028)
Breastfeeding $\geq$ 12 months	0.030	0.026	**0.060*** **	-0.035	**0.054** **	-0.039	0.039	0.013	0.060	-0.018
	(0.035)	(0.045)	**(0.020)**	(0.028)	**(0.025)**	(0.076)	(0.029)	(0.021)	(0.039)	(0.048)
Stopped breastfeeding due	**-0.044** **	-0.000	**-0.050*** **	0.022	**-0.045*** **	-0.000	-0.041*	-0.018	-0.015	**-0.056*** **
to work	**(0.017)**	(0.020)	**(0.012)**	(0.020)	**(0.011)**	(0.042)	(0.024)	(0.038)	(0.012)	**(0.012)**
Health										
Mother in excellent/very good	-0.009	0.016	0.007	-0.013	0.009	-0.068*	0.004	0.031	0.043	-0.074
health (+)	(0.023)	(0.028)	(0.015)	(0.050)	(0.016)	(0.034)	(0.024)	(0.034)	(0.036)	(0.051)
Father in excellent/very good	-0.112	0.139**	0.016	-0.058	0.007	-0.060	-0.002	0.024	0.014	-0.021*
health (+)	(0.068)	(0.066)	(0.029)	(0.052)	(0.032)	(0.053)	(0.032)	(0.025)	(0.027)	(0.012)
Mother's depression score (-)	-0.226	-0.370	**-0.589** **	0.246	**-0.537** **	0.060	-0.414*	-0.535	**-0.446** **	-0.166
	(0.657)	(0.715)	**(0.227)**	(0.253)	**(0.227)**	(0.580)	(0.238)	(0.464)	**(0.200)**	(0.221)
Post-partum health										
Post-partum depression (-)	0.032	-0.016	0.024	-0.022	0.023	**-0.048*** **	0.016	-0.005	0.024	-0.009
	(0.028)	(0.020)	(0.017)	(0.017)	(0.016)	**(0.017)**	(0.017)	(0.018)	(0.020)	(0.014)
Post-partum problem (-)	**0.040***	-0.024	0.023	-0.011	0.019	0.014	0.001	0.017	0.010	0.021
	(0.022)	(0.19)	(0.016)	(0.018)	(0.017)	(0.023)	(0.024)	(0.022)	(0.023)	(0.023)
Parental behavior										
Family dysfunction index (-)	-0.300	0.557	0.031	0.561	0.175	-0.187	0.091	-0.013	0.057	0.202
	(0.295)	(0.510)	(0.317)	(0.526)	(0.264)	(0.576)	(0.413)	(0.456)	(0.422)	(0.477)
Ineffective parenting style (-)	0.093	-0.172	-0.082	0.144	-0.047	-0.019	-0.062	0.047	-0.041	-0.016
	(0.179)	(0.236)	(0.094)	(0.122)	(0.097)	(0.242)	(0.107)	(0.080)	(0.114)	(0.112)
Positive interaction (+)	0.341*	-0.154	0.205	0.034	0.209*	0.060	0.074	0.235	0.181	0.063
	(0.176)	(0.158)	(0.152)	(0.202)	(0.125)	(0.219)	(0.157)	(0.232)	(0.147)	(0.127)
Spends 5 minutes of focused time -	0.078**	-0.018	**0.072*** **	-0.037	**0.065*** **	-0.031	**0.065** **	-0.007	**0.068*** **	-0.009
many times a day (+)	(0.038)	(0.033)	**(0.019)**	(0.037)	**(0.018)**	(0.037)	**(0.025)**	(0.030)	**(0.020)**	(0.013)
Does a special activity that the child	-0.016	0.045	0.007	**0.060*** **	0.019	0.029	0.025	-0.002	0.032	-0.021
enjoys once a day or more (+)	(0.043)	(0.051)	(0.028)	**(0.020)**	(0.027)	(0.047)	(0.032)	(0.038)	(0.036)	(0.043)
Laughs with child many times	0.023	-0.041	-0.006	-0.021	-0.008	-0.028	-0.027	0.031	0.008	-0.036
a day (+)	(0.034)	(0.028)	(0.023)	(0.039)	(0.019)	(0.048)	(0.023)	(0.029)	(0.026)	(0.033)
Plays games with child once	0.076**	-0.048	0.029*	0.030	0.033**	0.030	-0.008	**0.089*** **	0.016	0.039*
a day or more (+)	(0.038)	(0.048)	(0.017)	(0.028)	(0.016)	(0.024)	(0.026)	**(0.030)**	(0.023)	(0.023)
Praises the child many times	**0.124*** **	**-0.060*** **	**0.079*** **	-0.018	**0.078*** **	-0.040	**0.075*** **	0.007	0.040*	**0.067*** **
each day (+)	**(0.028)**	**(0.020)**	**(0.022)**	(0.032)	**(0.018)**	(0.048)	**(0.026)**	(0.030)	(0.021)	**(0.015)**
Parent sings songs with the child (+)	-0.095	0.083	-0.040	0.059	-0.010	-0.228	-0.050	0.070	0.026	-0.100
	(0.112)	(0.108)	(0.058)	(0.098)	(0.055)	(0.217)	(0.059)	(0.080)	(0.074)	(0.074)
Teaches child new words (+)	**0.312** **	**-0.294*** **	0.036	0.141**	0.077	-0.111	0.072	0.042	0.036	0.062
	(0.124)	**(0.101)**	(0.064)	(0.065)	(0.071)	(0.117)	(0.102)	(0.095)	(0.099)	(0.097)
Takes the child outside for	-0.064	-0.017	**-0.128** **	**0.214*** **	-0.088	0.128	0.012	-0.171*	-0.098	0.037
a walk or to play(+)	(0.096)	(0.077)	**(0.054)**	**(0.067)**	(0.056)	(0.118)	(0.090)	(0.089)	(0.073)	(0.104)

Notes: For each dependent variable, we report the estimated policy effects under different specifications (β_1 shown). Child, family and birth characteristics are included in all regressions. Standard errors (in parentheses) are clustered by province and by birth-year cohort. Statistically significant estimates according to the adjusted p-values are presented in bold.
***: significant at 1% ; **: significant at 5% ;*: significant at 10%

Table 10 – Heterogeneous effects (CCHS data)

	Maternal education	
Dependent variable	QPIP	QPIP*HighEduc
Breastfeeding		
Incidence of breastfeeding	0.017	0.022
	(0.032)	(0.023)
Duration of breastfeeding	-0.098	**0.827*** **
(in months)	(0.307)	**(0.298)**
Breastfeeding $\geq$ 3 months	-0.050	**0.123*** **
	(0.038)	**(0.037)**
Breastfeeding $\geq$ 6 months	-0.043	**0.129*** **
	(0.039)	**(0.038)**
Breastfeeding $\geq$ 9 months	-0.009	**0.084** **
	(0.034)	**(0.032)**
Breastfeeding $\geq$ 12 months	0.040	0.010
	(0.027)	(0.026)
Duration of exclusive breastfeeding	-0.013	0.308
(in months)	(0.221)	(0.213)
Exclusive breastfeeding $\geq$ 3 months	0.010	0.041
	(0.035)	(0.032)
Exclusive breastfeeding $\geq$ 6 months	-0.015	0.026
	(0.033)	(0.032)
Health		
Mother in excellent/very good	0.077	-0.006
health (+)	(0.056)	(0.050)
Mother in excellent/very good	-0.017	0.028
mental health (+)	(0.061)	(0.071)
Self-perceived health compared to	0.043	-0.094
one year ago (-)	(0.186)	(0.171)
Very satisfied/satisfied with life	**0.077*** **	-0.044*
in general (+)	**(0.029)**	(0.024)
Stress (-)	-0.032	-0.062
	(0.118)	(0.120)
Belonging (-)	-0.166	0.146
	(0.128)	(0.091)

Notes: For each dependent variable, we report the estimated policy effects under different specifications (β_1 shown). Child and family characteristics are included in all regressions. Standard errors (in parentheses) are clustered by province and by birth-year cohort. Statistically significant estimates according to the adjusted p-values are presented in bold.
***: significant at 1% ; **: significant at 5% ;*: significant at 10%

Table A.1 – Outcomes index component (NLSCY/SYC data) (Appendix)

Outcome index	Questions	
Depression score (Range: 0-36)	How often have you felt or behaved this way during the last week: a) I did not feel like eating; b) I felt that I could not shake off the blues even with help from family or friends; c) I had trouble keeping my mind on what I was doing; d) I felt depressed; e) I felt that everything I did was an effort; f) I felt hopeful about the future; g) My sleep was restless; h) I was happy; i) I felt lonely; j) I enjoyed life (reversed); k) I had crying spells; l) I felt that people dislike me.	Rarely or none of the time less than 1 day (1) to Most or all of the time 5-7 days (4)
Family dysfunction index (Range: 0-36)	Planning family activities is difficult because we misunderstand each other. In times of crisis we can turn to each other for support; We cannot talk to each other about sadness we feel. Individuals in the family are accepted for who they are; We avoid discussing our fears or concerns; We express feelings to each other; There are lots of bad feelings in our family; We feel accepted for who we are; Making decisions is a problem for our family; We are able to make decisions about how to solve problems; We don't get along well together; We confide in each other.	Strongly agree (1) to Strongly disagree (4)
Ineffective parenting style (0-23 months) (Range: 0-8)	How often do you: get annoyed with this child for saying or doing something he/she is not supposed to?; tell him/her that he/she is bad or not as good as others?	Never (1) to many times each day (5)
Positive interaction (0-23 months) (Range: 0-20)	How often do you: praise this child by saying something like "Good for you!" or "What a nice thing you did!" or "That's good going!"?; and this child talk or play with each other, focussing attention on each other for five minutes or more, just for fun?; and this child laugh together?; do something special with this child that he/she enjoys?; play games with this child?	Never (1) to many times each day (5)
Parent sings songs with the child (Range: 1-5)	How often do you get a chance to sing songs with this child?	Rarely or never (1) to daily (5)
Parent teaches new words (Range: 1-5)	How often do you get a chance to teach this child new words?	Rarely or never (1) to daily (5)
Parent takes the child outside for a walk (Range: 1-5)	How often do you get a chance to take this child outside for a walk or to play in the yard, park or playground?	Rarely or never (1) to daily (5)

Table A.2 – Descriptive statistics for the dependent variables (NLSCY/SYC data) (Appendix)

Variable	Quebec		(1) Difference	Rest of Canada		(2) Difference	(1)-(2)
	Pre-period	Post-period	Post-Pre	Pre-period	Post-period	Post-Pre	Prob > Chi2
Breastfeeding							
Incidence of breastfeeding	0.82	0.87	0.05***	0.89	0.91	0.02***	0.0448
	(0.39)	(0.33)	(0.02)	(0.32)	(0.29)	(0.01)	
Duration of breastfeeding	4.34	5.32	0.98***	5.59	5.87	0.28***	0.0032
(in months)	(4.20)	(4.48)	(0.21)	(4.35)	(4.44)	(0.11)	
Breastfeeding $\geq$ 3 months	0.52	0.61	0.09***	0.66	0.67	0.01	0.0033
	(0.50)	(0.49)	(0.02)	(0.47)	(0.47)	(0.01)	
Breastfeeding $\geq$ 6 months	0.52	0.56	0.04*	0.66	0.6	-0.06***	0.0002
	(0.50)	(0.50)	(0.02)	(0.47)	(0.49)	(0.01)	
Breastfeeding $\geq$ 9 months	0.32	0.40	0.08***	0.42	0.44	0.02*	0.0262
	(0.47)	(0.49)	(0.02)	(0.49)	(0.50)	(0.01)	
Breastfeeding $\geq$ 12 months	0.17	0.26	0.08***	0.27	0.31	0.03***	0.0298
	(0.38)	(0.44)	(0.02)	(0.44)	(0.46)	(0.01)	
Stopped breastfeeding due	0.12	0.09	-0.03**	0.08	0.08	0.01	0.0149
to work	(0.32)	(0.28)	(0.01)	(0.26)	(0.28)	(0.01)	
N	1,651	1,456		9,390	8,427		
Health							
Mother in excellent/very good	0.77	0.79	0.01	0.75	0.76	0.01	0.7666
health (+)	(0.42)	(0.41)	(0.03)	(0.43)	(0.43)	(0.01)	
Father in excellent/very good	0.76	0.78	0.02	0.75	0.75	0.00	0.4949
health (+)	(0.43)	(0.41)	(0.03)	(0.44)	(0.44)	(0.01)	
Mother's depression score (-)	4.17	3.45	-0.72**	3.93	3.7	-0.23	0.1428
	(4.65)	(4.24)	(0.30)	(4.49)	(4.25)	(0.15)	
N	788	946		4,032	4,918		
Post-partum health							
Post-partum depression (-)	0.05	0.06	0.01	0.13	0.12	-0.01	0.2008
	(0.23)	(0.24)	(0.01)	(0.34)	(0.33)	(0.01)	
Post-partum problem (-)	0.12	0.11	-0.01	0.20	0.18	-0.02	0.5202
	(0.32)	(0.31)	(0.02)	(0.40)	(0.38)	(0.01)	
N	1,082	1,456		6,383	8,411		
Parental behavior							
Family dysfunction index (-)	7.93	7.56	-0.38	8.32	7.98	-0.34**	0.9152
	(5.05)	(4.77)	(0.32)	(5.13)	(5.02)	(0.16)	
Ineffective parenting style (-)	1.88	1.81	-0.07	2.13	2.07	-0.07	0.9656
	(1.61)	(1.7)	(0.10)	(1.67)	(1.73)	(0.05)	
Positive interaction (+)	17.73	17.86	0.12	18.12	17.99	-0.13**	0.0698
	(2.16)	(2.01)	(0.13)	(1.89)	(1.99)	(0.06)	
Spends 5 minutes of focused time	0.79	0.84	0.05**	0.81	0.8	-0.01	0.0185
many times a day (+)	(0.41)	(0.36)	(0.02)	(0.39)	(0.40)	(0.01)	
Does a special activity that the child	0.64	0.66	0.02	0.80	0.79	-0.01	0.3635
enjoys once a day or more (+)	(0.48)	(0.47)	(0.03)	(0.40)	(0.41)	(0.01)	
Laughs with child many times	0.9	0.89	-0.01	0.87	0.87	-0.00	0.6898
a day (+)	(0.30)	(0.31)	(0.02)	(0.33)	(0.33)	(0.01)	
Plays games with child once	0.87	0.9	0.03	0.91	0.89	-0.01	0.0475
a day or more (+)	(0.34)	(0.30)	(0.02)	(0.29)	(0.31)	(0.01)	
Praises the child many times	0.82	0.87	0.05**	0.89	0.87	-0.02*	0.0035
each day (+)	(0.39)	(0.34)	(0.02)	(0.31)	(0.33)	(0.01)	
Sings songs with the child (+)	4.56	4.55	-0.01	4.75	4.71	-0.04*	0.5791
	(0.88)	(0.88)	(0.05)	(0.69)	(0.70)	(0.02)	
Teaches child new words (+)	4.5	4.5	0.01	4.65	4.61	-0.04	0.552
	(1.13)	(1.13)	(0.07)	(0.91)	(1.00)	(0.03)	
Takes the child outside for	4.16	4.04	-0.12*	4.45	4.43	-0.03	0.1879
a walk or to play(+)	(1.00)	(1.04)	(0.07)	(0.80)	(0.79)	(0.02)	
N	805	962		4,084	4,990		

Notes: This table displays the weighted summary statistics for dependent variables. The statistics are presented by region (Quebec and the rest of Canada) for the pre-reform and post-reform periods. P-values of the differences are in the last column. Standard deviations are in parentheses (standard errors for the differences columns).
***: significant at 1% ; **: significant at 5% ;*: significant at 10%

Table A.3 – Descriptive statistics for the independent variables (NLSCY/SYC data) (Appendix)

Variable	Quebec		(1) Difference	Rest of Canada		(2) Difference	(1)-(2)
	Pre-period	Post-period	Post-Pre	Pre-period	Post-period	Post-Pre	Prob > Chi2
Child is a boy	0.50	0.53	0.02	0.50	0.50	-0.00	0.4080
	(0.50)	(0.50)	(0.031)	(0.50)	(0.50)	(0.015)	
Mother							
Less than high school	0.07	0.05	-0.02	0.06	0.06	-0.01	0.4610
	(0.25)	(0.22)	(0.014)	(0.24)	(0.23)	(0.007)	
High school diploma	0.08	0.13	0.05**	0.15	0.19	0.04***	0.7338
	(0.27)	(0.33)	(0.019)	(0.35)	(0.39)	(0.012)	
Some post-secondary	0.16	0.15	-0.01	0.13	0.19	0.05***	0.0111
	(0.37)	(0.36)	(0.021)	(0.34)	(0.39)	(0.011)	
Post-secondary degree	0.69	0.67	-0.02	0.65	0.57	-0.08***	0.0472
	(0.46)	(0.47)	(0.029)	(0.48)	(0.49)	(0.015)	
Age 14–24 at birth	0.15	0.12	-0.03	0.14	0.13	-0.01	0.4806
	(0.35)	(0.33)	(0.019)	(0.35)	(0.34)	(0.010)	
Age 25–29 at birth	0.42	0.37	-0.05	0.30	0.31	0.01	0.0984
	(0.49)	(0.48)	(0.030)	(0.46)	(0.46)	(0.014)	
Age 30–34 at birth	0.30	0.37	0.07**	0.36	0.36	-0.00	0.0246
	(0.46)	(0.48)	(0.030)	(0.48)	(0.48)	(0.015)	
Age 35 or more at birth	0.14	0.14	0.00	0.20	0.20	0.00	0.8792
	(0.34)	(0.34)	(0.021)	(0.40)	(0.40)	(0.013)	
Immigrant	0.16	0.16	0.00	0.20	0.24	0.04***	0.2280
	(0.37)	(0.37)	(0.025)	(0.40)	(0.43)	(0.015)	
Father							
Less than high school	0.13	0.07	-0.06***	0.10	0.07	-0.03***	0.0793
	(0.34)	(0.26)	(0.018)	(0.30)	(0.26)	(0.009)	
High school diploma	0.11	0.15	0.04*	0.18	0.22	0.04***	0.9283
	(0.32)	(0.36)	(0.021)	(0.39)	(0.42)	(0.012)	
Some post-secondary	0.18	0.21	0.03	0.12	0.19	0.07***	0.1754
	(0.38)	(0.41)	(0.024)	(0.33)	(0.39)	(0.011)	
Post-secondary degree	0.58	0.56	-0.01	0.60	0.51	-0.08***	0.0375
	(0.49)	(0.50)	(0.031)	(0.49)	(0.50)	(0.015)	
Age 14–24 at birth	0.06	0.05	-0.02	0.07	0.06	-0.01	0.6909
	(0.24)	(0.21)	(0.013)	(0.25)	(0.23)	(0.007)	
Age 25–29 at birth	0.31	0.28	-0.03	0.23	0.23	-0.01	0.4196
	(0.46)	(0.45)	(0.029)	(0.42)	(0.42)	(0.012)	
Age 30–34 at birth	0.38	0.37	-0.00	0.34	0.35	0.01	0.6562
	(0.48)	(0.48)	(0.030)	(0.47)	(0.48)	(0.014)	
Age 35 or more at birth	0.25	0.3	0.05*	0.36	0.37	0.00	0.1365
	(0.43)	(0.46)	(0.027)	(0.48)	(0.48)	(0.015)	
Immigrant	0.19	0.18	-0.01	0.20	0.23	0.03**	0.1670
	(0.39)	(0.38)	(0.026)	(0.40)	(0.42)	(0.015)	
Family							
Rural region	0.13	0.17	0.05***	0.12	0.14	0.03***	0.3323
	(0.33)	(0.38)	(0.017)	(0.32)	(0.35)	(0.008)	
Population <30,000	0.14	0.06	-0.08***	0.20	0.09	-0.11***	0.0809
	(0.35)	(0.24)	(0.016)	(0.40)	(0.29)	(0.009)	
Population 30,000-99,999	0.09	0.08	-0.01	0.09	0.08	-0.01	0.8544
	(0.29)	(0.27)	(0.014)	(0.29)	(0.28)	(0.007)	
Population 100,000-499,000	0.06	0.05	-0.01	0.17	0.21	0.04***	0.0001
	(0.23)	(0.22)	(0.008)	(0.37)	(0.41)	(0.010)	
Population >499,000	0.58	0.63	0.05*	0.42	0.47	0.05***	0.9654
	(0.49)	(0.48)	(0.028)	(0.49)	(0.50)	(0.016)	
No older sibling	0.44	0.48	0.03	0.43	0.42	-0.01	0.2200
	(0.50)	(0.50)	(0.031)	(0.49)	(0.49)	(0.015)	
One older sibling	0.39	0.38	-0.01	0.39	0.39	-0.01	0.8233
	(0.49)	(0.49	(0.030)	(0.49)	(0.49)	(0.015)	
Two or more older siblings	0.17	0.15	-0.02	0.18	0.20	0.01	0.1667
	(0.37)	(0.35)	(0.022)	(0.39)	(0.40)	(0.012)	
No younger sibling	0.97	0.96	-0.01	0.97	0.97	0.00	0.5753
	(0.18)	(0.20)	(0.012)	(0.17)	(0.17)	(0.005)	
One younger sibling	0.03	0.04	0.01	0.03	0.03	0.00	0.5992
	(0.18)	(0.20)	(0.012)	(0.17)	(0.17)	(0.005)	
Two or more younger siblings	0.00	0.00	-0.00	0.00	0.00	-0.00	0.5543
	(0.02)	(0.00)	(0.000)	(0.03)	(0.00)	(0.001)	
Birth variables and other variables							
Premature birth	0.09	0.07	-0.02	0.09	0.09	-0.01	0.3535
	(0.29)	(0.25)	(0.015)	(0.29)	(0.28)	(0.009)	
Normal birth weight	0.96	0.94	-0.02*	0.96	0.95	-0.00	0.2054
	(0.19)	(0.23)	(0.011)	(0.20)	(0.21)	(0.007)	
High blood pressure during pregnancy	0.06	0.05	-0.01	0.10	0.09	-0.01	0.6216
	(0.24)	(0.22)	(0.012)	(0.30)	(0.28)	(0.009)	
Gestational diabetes	0.07	0.07	0.00	0.06	0.06	0.00	0.9852
	(0.25)	(0.25)	(0.014)	(0.24)	(0.24)	(0.008)	
Vaginal delivery	0.79	0.77	-0.02	0.73	0.72	-0.01	0.7499
	(0.41)	(0.42)	(0.026)	(0.44)	(0.45)	(0.014)	
Prenatal care received	0.96	0.96	-0.00	0.99	0.99	0.00	0.5802
	(0.19)	(0.19)	(0.011)	(0.10)	(0.08)	(0.003)	
Child's health at birth is good/fair/poor	0.10	0.13	0.02	0.11	0.12	0.00	0.3867
	(0.30)	(0.33)	(0.020)	(0.32)	(0.32)	(0.010)	
Child received special medical care after birth	0.15	0.17	0.02	0.16	0.16	-0.01	0.2963
	(0.36)	(0.38)	(0.023)	(0.37)	(0.36)	(0.011)	
Provincial unemployment rate	7.37	6.66	-0.71***	5.49	5.21	-0.28***	0.0000
	(0.18)	(0.35)	(0.018)	(1.83)	(1.75)	(0.040)	
N	844	988		4,327	5,189		

Notes: Descriptive statistics of children aged 0-1 years. The statistics are presented by region (Quebec and the rest of Canada) for the pre-reform and post-reform periods. P-values of the differences are in the last column. Standard deviations are in parentheses (standard errors for the differences columns). ***: significant at 1% ; **: significant at 5% ;*: significant at 10%

Table A.4 – Descriptive statistics for the dependent variables (CCHS data) (Appendix)

Variable	Quebec		(1) Difference	Rest of Canada		(2) Difference	(1)-(2)
	Pre-period	Post-period	Post-Pre	Pre-period	Post-period	Post-Pre	Prob > Chi2
Breastfeeding							
Incidence of breastfeeding	0.84	0.90	0.06***	0.90	0.92	0.02***	0.0183
	(0.37)	(0.31)	(0.02)	(0.30)	(0.27)	(0.01)	
Duration of breastfeeding	4.27	5.22	0.93***	5.63	5.79	0.16	0.0024
(in months)	(4.24)	(4.47)	(0.22)	(4.42)	(4.48)	(0.12)	
Breastfeeding $\geq$ 3 months	0.52	0.60	0.08***	0.66	0.66	-0.00	0.0043
	(0.50)	(0.49)	(0.03)	(0.47)	(0.47)	(0.01)	
Breastfeeding $\geq$ 6 months	0.37	0.47	0.09***	0.50	0.52	0.01	0.0060
	(0.48)	(0.50)	(0.03)	(0.50)	(0.50)	(0.01)	
Breastfeeding $\geq$ 9 months	0.28	0.38	0.09***	0.40	0.42	0.02	0.0057
	(0.45)	(0.49)	(0.02)	(0.49)	(0.49)	(0.01)	
Breastfeeding $\geq$ 12 months	0.18	0.25	0.07***	0.28	0.30	0.02*	0.0343
	(0.38)	(0.44)	(0.02)	(0.45)	(0.46)	(0.01)	
Duration of exclusive breastfeeding	2.8	3.21	0.41***	3.51	3.50	-0.01	0.0040
(in months)	(2.58)	(2.57)	(0.13)	(2.90)	(2.78)	(0.07)	
Exclusive breastfeeding $\geq$ 3 months	0.50	0.56	0.06**	0.60	0.59	-0.00	0.0138
	(0.50)	(0.50)	(0.02)	(0.49)	(0.49)	(0.01)	
Exclusive breastfeeding $\geq$ 6 months	0.17	0.25	0.09***	0.28	0.33	0.06***	0.1292
	(0.37)	(0.44)	(0.02)	(0.45)	(0.47)	(0.01)	
N	1,489	2,705		5,953	8,468		
Health							
Mother in excellent/very good	0.77	0.78	0.01	0.77	0.74	-0.03*	0.21
health (+)	(0.42)	(0.41)	(0.03)	(0.42)	(0.44)	(0.01)	
Mother in excellent/very good	0.84	0.79	-0.06**	0.83	0.79	-0.04***	0.4574
mental health (+)	(0.36)	(0.41)	(0.02)	(0.38)	(0.41)	(0.01)	
Self-perceived health compared to	2.79	2.76	-0.03	2.74	2.74	0.00	0.6232
one year ago (-)	(0.76)	(0.81)	(0.05)	(0.77)	(0.77)	(0.03)	
Very satisfied/satisfied with life	0.95	0.92	-0.03*	0.97	0.92	-0.05***	0.353
in general (+)	(0.22)	(0.27)	(0.02)	(0.18)	(0.27)	(0.01)	
Stress (-)	2.89	2.86	-0.03	2.84	2.82	-0.01	0.7326
	(0.88)	(0.89)	(0.05)	(0.84)	(0.84)	(0.03)	
Belonging (-)	2.56	2.46	-0.09*	2.34	2.32	-0.02	0.2573
	(0.83)	(0.77)	(0.05)	(0.81)	(0.81)	(0.03)	
N	747	1,498		2,979	4,996		

Notes: This table displays the weighted summary statistics for dependent variables. The statistics are presented by region (Quebec and the rest of Canada) for the pre-reform and post-reform periods. P-values of the differences are in the last column. Standard deviations are in parentheses (standard errors for the differences columns).
***: significant at 1% ; **: significant at 5% ;*: significant at 10%

Table A.5 – Descriptive statistics for the independent variables (CCHS data) (Appendix)

Mother	Quebec		(1) Difference	Rest of Canada		(2) Difference	(1)-(2)
	Pre-period	Post-period	Post-Pre	Pre-period	Post-period	Post-Pre	Prob > Chi2
Ages 20-24	0.13	0.09	-0.04*	0.10	0.09	-0.01	0.1769
	(0.34)	(0.29)	(0.02)	(0.29)	(0.28)	(0.01)	
Ages 25-29	0.33	0.36	0.03	0.28	0.29	0.01	0.6532
	(0.47)	(0.48)	(0.03)	(0.45)	(0.45)	(0.01)	
Ages 30-34	0.36	0.34	-0.02	0.37	0.37	-0.01	0.6841
	(0.48)	(0.48)	(0.01)	(0.48)	(0.48)	(0.01)	
Ages 35-39	0.16	0.17	0.01	0.20	0.21	0.01	0.9575
	(0.37)	(0.37)	(0.01)	(0.40)	(0.41)	(0.01)	
Ages 40-44	0.02	0.04	0.02	0.05	0.05	0.01	0.0338
	(0.14)	(0.20)	(0.04)	(0.22)	(0.21)	(0.01)	
Ages 45 or more	0.00	0.00	0.00	0.00	0.00	0.00	0.4742
	(0.00)	(0.00)	(0.01)	(0.04)	(0.02)	(0.01)	
Less than high school	0.06	0.06	-0.01	0.06	0.06	-0.01	0.9319
	(0.25)	(0.23)	(0.02)	(0.25)	(0.23)	(0.01)	
High school diploma	0.10	0.08	-0.03	0.17	0.14	-0.03**	0.9276
	(0.30)	(0.27)	(0.02)	(0.37)	(0.35)	(0.01)	
Some college	0.05	0.05	-0.01	0.07	0.05	-0.02***	0.2465
	(0.23)	(0.21)	(0.01)	(0.26)	(0.21)	(0.01)	
Bachelor's and above	0.78	0.82	0.04	0.70	0.76	0.06***	0.4634
	(0.41)	(0.39)	(0.03)	(0.46)	(0.43)	(0.02)	
No. of children aged 1–5	1.45	1.56	0.10**	1.56	1.59	0.04*	0.1754
	(0.60)	(0.66)	(0.04)	(0.65)	(0.66)	(0.02)	
No. of children aged 6–11	0.24	0.19	-0.05	0.26	0.21	-0.06***	0.8421
	(0.58)	(0.50)	(0.04)	(0.57)	(0.52)	(0.02)	
Household size	3.71	3.78	0.06	3.92	3.87	-0.05	0.1255
	(0.95)	(0.86)	(0.06)	(1.02)	(0.94)	(0.04)	
Canadian-born	0.84	0.77	-0.07**	0.78	0.74	-0.05***	0.4287
	(0.36)	(0.42)	(0.03)	(0.41)	(0.44)	(0.02)	
Immigrant (0-9 years)	0.08	0.17	0.09***	0.12	0.15	0.03**	0.0201
	(0.27)	(0.38)	(0.02)	(0.33)	(0.36)	(0.01)	
Immigrant (10 years and over)	0.08	0.05	-0.02	0.10	0.11	0.02	0.2638
	(0.27)	(0.23)	(0.03)	(0.29)	(0.31)	(0.01)	
Urban residence	0.82	0.76	-0.06**	0.82	0.83	0.01	0.0051
	(0.39)	(0.43)	(0.02)	(0.38)	(0.37)	(0.01)	
Provincial unemployment rate	7.76	6.64	-1.12***	5.48	5.73	0.25***	0.0000
	(0.35)	(0.33)	(0.02)	(1.69)	(1.62)	(0.05)	
N	748	1,498		2,979	4,996		

Notes: Descriptive statistics of children aged 0-1 years. The statistics are presented by region (Quebec and the rest of Canada) for the pre-reform and post-reform periods. P-values of the differences are in the last column. Standard deviations are in parentheses (standard errors for the differences columns).
***: significant at 1% ; **: significant at 5% ;*: significant at 10%

Table A.6 – Estimates for 2003-2011 (CCHS data) (Appendix)

	Panel A		Panel B	
	QPIP	N	QPIP	N
Dependent variable				
Mother in excellent/very good	0.072*	8,165	0.072*	8,165
health (+)	(0.040)		(0.037)	
Mother in excellent/very good	-0.011	8,163	-0.011	8,163
mental health (+)	(0.027)		(0.031)	
Self-perceived health compared to	-0.001	8,159	-0.001	8,159
one year ago (-)	(0.065)		(0.037)	
Very satisfied/satisfied with life	0.032*	8,093	0.032**	8,093
in general (+)	(0.018)		(0.016)	
Stress (-)	-0.033	8,154	-0.033	8,154
	(0.066)		(0.057)	
Belonging (-)	0.053	8,112	0.053	8,112
	(0.078)		(0.076)	

Notes: For each dependent variable, we report the estimated policy for years 2003-2011. Child and family characteristics are included in all regressions. In Panel A, standard errors (in parentheses) are clustered by province and by birth-year cohort. In Panel B, standard errors (in parentheses) are clustered by province and by year. Statistically significant estimates according to the adjusted p-values are presented in bold.
***: significant at 1% ; **: significant at 5% ;*: significant at 10%

Table A.7 – Probit estimates (NLSCY/SYC and CCHS data) (Appendix)

NLSCY/SYC data			CCHS data		
Dependent variable	QPIP	N	Dependent variable	QPIP	N
Breastfeeding			Breastfeeding		
Incidence of breastfeeding	-0.000	18,451	Incidence of breastfeeding	0.019	22,765
	(0.015)			(0.015)	
Breastfeeding $\geq$ 3 months	0.055*	16,743	Breastfeeding $\geq$ 3 months	**0.051****	18,341
	(0.029)			**(0.022)**	
Breastfeeding $\geq$ 6 months	**0.065****	16,743	Breastfeeding $\geq$ 6 months	**0.065*****	18,341
	(0.029)			**(0.023)**	
Breastfeeding $\geq$ 9 months	0.056*	16,461	Breastfeeding $\geq$ 9 months	**0.063*****	18,341
	(0.029)			**(0.023)**	
Breastfeeding $\geq$ 12 months	**0.073****	15,697	Breastfeeding $\geq$ 12 months	**0.052*****	18,341
	(0.033)			**(0.018)**	
Stopped breastfeeding due	**-0.036*****	16,599	Exclusive breastfeeding $\geq$ 3 months	0.046*	21,471
to work	**(0.008)**			(0.025)	
			Exclusive breastfeeding $\geq$ 6 months	0.022	21,471
				(0.025)	
Health			Health		
Mother in excellent/very good	0.006	10,154	Mother in excellent/very good	**0.070****	10,054
health (+)	(0.015)		health (+)	**(0.030)**	
Father in excellent/very good	0.005	10,148	Mother in excellent/very good	0.005	10,047
health (+)	(0.030)		mental health (+)	(0.027)	
Post-partum health			Very satisfied/satisfied with life	**0.045*****	9,898
Post-partum depression (-)	0.021	15,420	in general (+)	**(0.014)**	
	(0.024)				
Post-partum problem (-)	0.017	15,410			
	(0.020)				
Parental behavior					
Spends 5 minutes of focused time	**0.061*****	10,096			
many times a day (+)	**(0.015)**				
Does a special activity that the child	0.016	10,045			
enjoys once a day or more (+)	(0.019)				
Laughs with child many times	-0.013	10,089			
a day (+)	(0.022)				
Plays games with child once	**0.037*****	10,095			
a day or more (+)	**(0.012)**				
Praises the child many times	**0.060*****	10,099			
each day (+)	**(0.011)**				

Notes: Probit marginal effects are assessed at the mean values of covariates. Child, family and birth characteristics are included in all regressions for NLSCY/SYC data. Child and family characteristics are included in all regressions for CCHS data. Standard errors (in parentheses) are clustered by province and by birth-year cohort. Statistically significant estimates according to the adjusted p-values are presented in bold.
***: significant at 1% ; **: significant at 5% ;*: significant at 10%

Table A.8 – Common Trend Test (Appendix)

NLSCY/SYC data			CCHS data		
Dependent variable	TR*Que	N	Dependent variable	TR*Que	N
Breastfeeding			Breastfeeding		
Incidence of breastfeeding	-0.002	9,582	Incidence of breastfeeding	-0.000	8,847
	(0.014)			(0.015)	
Duration of breastfeeding	0.155	9,067	Duration of breastfeeding	-0.049	7,359
(in months)	(0.150)		(in months)	(0.149)	
Breastfeeding $\geq$ 3 months	0.021	9,067	Breastfeeding $\geq$ 3 months	-0.015	7,359
	(0.018)			(0.016)	
Breastfeeding $\geq$ 6 months	0.021	9,067	Breastfeeding $\geq$ 6 months	-0.000	7,359
	(0.018)			(0.019)	
Breastfeeding $\geq$ 9 months	0.025*	9,067	Breastfeeding $\geq$ 9 months	-0.017	7,359
	(0.013)			(0.015)	
Breastfeeding $\geq$ 12 months	-0.001	9,067	Breastfeeding $\geq$ 12 months	0.008	7,359
	(0.011)			(0.008)	
Stopped breastfeeding due	0.002	9,061	Duration of exclusive breastfeeding	-0.020	8,257
to work	(0.006)		(in months)	(0.090)	
			Exclusive breastfeeding $\geq$ 3 months	-0.009	8,347
				(0.014)	
			Exclusive breastfeeding $\geq$ 6 months	0.003	8,347
				(0.014)	
Health			Health		
Mother in excellent/very good	-0.008	4,519	Mother in excellent/very good	0.020*	3,677
health (+)	(0.011)		health (+)	(0.010)	
Father in excellent/very good	0.006	4,513	Mother in excellent/very good	-0.002	3,677
health (+)	(0.011)		mental health (+)	(0.009)	
Mother's depression score (-)	0.143	4,402	Self-perceived health compared	0.005	3,674
	(0.135)		to one year ago (-)	(0.019)	
Post-partum health			Very satisfied/satisfied with life	0.001	3,677
Post-partum depression (-)	0.005	6,549	in general (+)	(0.008)	
	(0.007)		Stress (-)	-0.043*	3,672
Post-partum problem (-)	-0.001	6,546		(0.022)	
	(0.007)		Belonging (-)	0.036	3,657
				(0.040)	
Parental behavior					
Family dysfunction index (-)	0.049	4,411			
	(0.079)				
Ineffective parenting style (-)	0.053	4,315			
	(0.056)				
Positive interaction (+)	-0.107	4,294			
	(0.076)				
Spends 5 minutes of focused time -	-0.005	4,509			
many times a day (+)	(0.011)				
Does a special activity that the child	-0.021	4,473			
enjoys once a day or more (+)	(0.017)				
Laughs with child many times	0.004	4,509			
a day (+)	(0.017)				
Plays games with child once	0.009	4,508			
a day or more (+)	(0.009)				
Praises the child many times	-0.014	4,509			
each day (+)	(0.010)				
Sings songs with the child (+)	-0.016	4,521			
	(0.025)				
Teaches child new words (+)	-0.042	4,509			
	(0.046)				
Takes the child outside for	-0.044	4,518			
a walk or to play(+)	(0.029)				

Notes: Table shows results for children born in the pre-QPIP period (2002-2005). Child, family and birth characteristics are included in all regressions for NLSCY/SYC data. Child and family characteristics are included in all regressions for CCHS data. Standard errors (in parentheses) are clustered by province and by birth-year cohort. Statistically significant estimates according to the adjusted p-values are presented in bold.
***: significant at 1% ; **: significant at 5% ;*: significant at 10%

Table A.9 – Robustness checks: pre-birth variables (NLSCY/SYC data) (Appendix)

Variable	Children 0-1		Children 0-3	
	QPIP	N	QPIP	N
Premature birth	-0.014	10,431	-0.004	20,143
	(0.015)		(0.015)	
Normal birth weight	-0.009	10,415	-0.009	20,095
	(0.014)		(0.011)	
High blood pressure during pregnancy	0.001	10,269	-0.004	19,533
	(0.017)		(0.017)	
Gestational diabetes	0.004	10,270	-0.001	19,536
	(0.015)		(0.014)	
Vaginal delivery	-0.008	10,472	0.017	20,231
	(0.021)		(0.018)	
Prenatal care received	-0.004	10,271	0.005	19,540
	(0.012)		(0.011)	
Child's health at birth is good/fair/poor	0.013	10,469	0.005	20,227
	(0.016)		(0.012)	
Child received special medical care after birth	0.028	10,469	0.016	20,222
	(0.030)		(0.024)	

Notes: Child and family characteristics are included in all regressions. Standard errors (in parentheses) are clustered by province and by birth-year cohort. Statistically significant estimates according to the adjusted p-values are presented in bold.
***: significant at 1% ; **: significant at 5% ;*: significant at 10%

Table A.10 – Long-term effects of QPIP (NLSCY/SYC and CCHS data) (Appendix)

Child 2–3 (NLSCY/SYC data)			Child 2–5 (CCHS data)		
Dependent variable	QPIP	N	Dependent variable	QPIP	N
Health			Health		
Mother in excellent/very good	0.020	8,849	Mother in excellent/very good	-0.032	12,718
health (+)	(0.023)		health (+)	(0.035)	
Father in excellent/very good	0.041*	8,811	Mother in excellent/very good	0.013	12,712
health (+)	(0.021)		mental health (+)	(0.025)	
Mother's depression score (-)	-0.706**	8,714	Self-perceived health compared to	0.042	12,715
	(0.342)		one year ago (-)	(0.050)	
Parental behavior			Very satisfied/satisfied with	0.019	12,436
Family dysfunction index (-)	-0.088	8,736	life in general (+)	(0.016)	
	(0.418)		Stress (-)	0.079	12,704
Ineffective parenting style (-)	0.149	7,720		(0.069)	
	(0.333)		Belonging (-)	0.006	12,626
Positive interaction (+)	**0.453*** **	7,930		(0.057)	
	(0.157)				
Spends 5 minutes of focused time	0.054	8,868			
many times a day (+)	(0.045)				
Does a special activity that the child	0.061*	8,864			
enjoys once a day or more (+)	(0.033)				
Laughs with child many times	0.025	8,867			
a day (+)	(0.030)				
Plays games with child once	0.056**	8,867			
a day or more (+)	(0.026)				
Praises the child many times	0.027	8,870			
each day (+)	(0.028)				
Sings songs with the child (+)	-0.077	8,914			
	(0.059)				
Takes the child outside for	0.063	8,912			
a walk or to play(+)	(0.078)				

Notes: For each dependent variable, we report the estimated policy effects (β_1 shown). Child, family and birth characteristics are included in all regressions for NLSCY/SYC data. Child and family characteristics are included in all regressions for CCHS data. Standard errors (in parentheses) are clustered by province and by birth-year cohort. Statistically significant estimates according to the adjusted p-values are presented in bold.
***: significant at 1% ; **: significant at 5% ;*: significant at 10%